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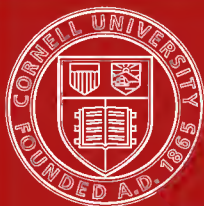
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THE STATE AND
AGRICULTURE IN HUNGARY



MAP SHOWING THE DISTRIBUTION OF STATE
INSTITUTES FOR AGRICULTURE
IN HUNGARY.

STATE INSTITUTES FOR AGRICULTURE
IN HUNGARY.

- 1 National Institute for Meteorology and Magnetism
- 2 Geological Institute, agropetrological section
- 3 District offices for land improvement
- 4 School for water controllers
- 5 Chemistry Institute and Chemistry experimental station
- 6 Central Station for seed testing
- 7 Seedtesting Station
- 8 Experimental Station for plant growing
- 9 Experimental Station for tobacco growing
- 10 Experimental Station for agricultural implements
- 11 Entomological Station
- 12 Station for phytophy and pathology of plants
- 13 Experimental Station for biology and feeding of cattle
- 14 Experimental Station for dairying
- 15 Central Commission on Experiments
- 16 Bacteriological Institute
- 17 Wooltesting Institute
- 18 Agricultural commission of experts
- 19 State studs
- 20 Station Stations
- 21 District inspection on cattle breeding
- 22 National inspection for dairy farms

- 23 Dairy schools
- 24 Schools for dairy labourers
- 25 School for dairy masts
- 26 Poultry farm and school for poultry labourers
- 27 Inspector of fisheries
- 28 Itinerant teachers in agriculture
- 29 Bee farms
- 30 National Inspector for sericulture
- 31 Veterinary Academy
- 32 Agricultural Academy
- 33 Agricultural College

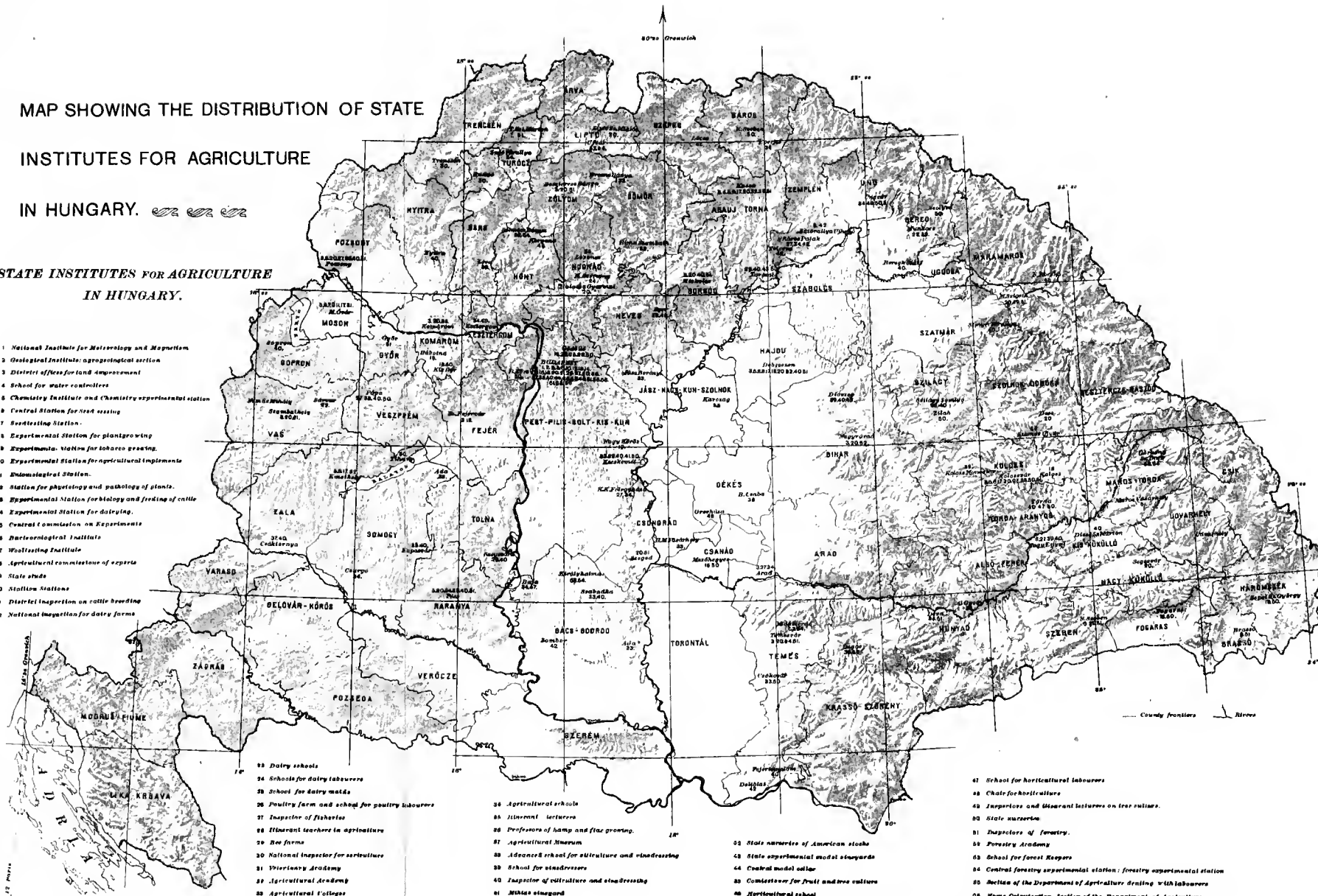
- 34 Agricultural schools
- 35 Itinerant lecturers
- 36 Professors of hemp and flax growing
- 37 Agricultural Museum
- 38 Advanced school for silviculture and woodbreeding
- 39 School for woodbreeders
- 40 Inspector of viticulture and winebreeding
- 41 Viticulture vineyard

- 42 State nurseries of American stocks
- 43 State experimental model vineyards
- 44 Central model cellar
- 45 Commission for fruit and tree culture
- 46 Horticultural school

- 47 School for horticultural labourers
- 48 Chair for horticulture
- 49 Inspectors and itinerant lecturers on tree culture
- 50 State nurseries
- 51 Inspectors of forestry
- 52 Forestry Academy
- 53 School for forest keepers
- 54 Central forestry experimental station; forestry experimental station
- 55 Section of the Department of Agriculture dealing with labourers
- 56 Home Colonization Section of the Department of Agriculture

FERRATA—

No. 28: Itinerant lecturers on agriculture,
Nos. 8-36 should be 9-37.



THE STATE AND AGRICULTURE IN HUNGARY

REPORT
OF THE MINISTER OF AGRICULTURE
DR. IGNATIUS DARÁNYI
ON HIS AGRICULTURAL ADMINISTRATION DURING THE
YEARS 1896—1903

TRANSLATED BY
ANDREW GYÖRGY
EX-M.P., AND AGRICULTURAL COMMISSIONER OF THE
ROYAL HUNGARIAN GOVERNMENT FOR GREAT BRITAIN AND FRANCE

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CONTENTS

PREFACE	PAGE
	vii
AGRICULTURAL HUNGARY	xvii
INTRODUCTORY	1
MODEL PEASANT FARMS	10
AGRICULTURAL CO-OPERATION	12
THE ADMINISTRATION OF THE ACT ON AGRICULTURE AND AGRICULTURAL POLICE	15
AGRICULTURAL STATISTICS	21
VITICULTURE AND VINE-DRESSING	29
I. Viticulture	29
(a) Prevention by Bisulphide of Carbon	31
(b) Vineyards on Sands	34
(c) Reconstruction of Vineyards	36
II. Vine-Dressing	56
III. Organisation of Systematic Technical Education for Viticulture and Vine-Dressing	59
(a) Lower Schools	59
(b) Higher Course for Viticulture and Vine-Dressing	61
(c) Course for Cellar-Masters	63
ORCHARDS AND HORTICULTURE	65
CATTLE-BREEDING AND DAIRY-FARMING	80
BEE KEEPING	92
SERICULTURE	98
PISCICULTURE	110
VETERINARY ADMINISTRATION	114
I. Veterinary Service	114
II. Trade in Live Stock	117
III. Contagious Diseases	121
IV. Cattle Markets and Slaughter Houses	125

	PAGE
THE VETERINARY COLLEGE	126
HORSE-BREEDING	129
STUD FARMS AND THE CROWN FARM AT GÖDÖLLÖ	135
(a) Farming	136
(b) Live Stock Breeding	138
(c) Other Public Advantages of these Farms	140
STATE FARMS AND SPAS	142
I. State Farms	142
II. State Spas	145
FORESTRY	146
ADMINISTRATION OF THE RIVERS	154
COLONISATION	165
STATE FORESTS SPECIFIED FOR COLONISATION	168
MEASURES TAKEN IN DEVELOPING THE CONGESTED DISTRICTS IN THE NORTH-EASTERN CARPATHIANS	176
MEASURES TAKEN FOR IMPROVING THE ECONOMIC CONDITIONS OF THE SZEKELY LAND	186
AGRICULTURAL LABOURERS	193
AGRICULTURAL EXPERIMENTAL AND RESEARCH STATIONS	209
TECHNICAL AGRICULTURAL EDUCATION	230
APPENDIX I. LEGISLATION AFFECTING AGRICULTURE SINCE 1896	249
APPENDIX II. STATE INSTITUTIONS IN HUNGARY FOR AGRI- CULTURE	253

PREFACE

THE following pages contain the Official Report to both Houses of the Hungarian Parliament by the Right Honourable Dr. Ignatius Darányi, late Minister of Agriculture, on the Agricultural Policy administered by him during his seven years' (1896-1903) tenure of office.

His tenure of office is admitted by every shade of public opinion in Hungary to have been the most successful in measures partly initiated, partly developed, in the interest of the farming industry. A new era was started and a new spirit awakened in agricultural policy, and this industry, the chief, but yet much neglected, made very great progress in this short time. Revival in agriculture is generally much slower than in any other industry in every country, in consequence of the simple fact, that agriculturists are living generally far apart from each other, and thus have less opportunity of agreeing as to their common difficulties and aims. Practically each farm is a unit in itself, having its own wants and difficulties; each farmer is an embodiment of the individualistic principles, and still more so in a country where the land-owner is—as a rule—the farmer himself; and the points of common interest are felt only in the second place, in

an advanced stage of intellectual and economical life. Consequently the history of the agricultural revival generally fairly illustrates the whole revival of a country, and although slower, yet at the same time it is more typical and more permanent than any other revival.

Exactly for these reasons there is nothing more interesting to the general reader, who wishes to be familiar with the main political and economical tendencies of his age in different countries, than to see this process in working, not only generally, but also in the particular, practical administration. The interest and pleasure felt by everybody in works like Cliffe Leslie's various volumes, or Sir Horace Plunkett's *Ireland in the New Century*, as well as in the official publications of the various Boards or Ministries of Agriculture, is so evident as to be universally admitted.

These considerations, and the encouragement given by the late Mr. Hanbury, President of the English Board of Agriculture, induced me to translate, and the Hungarian Board of Agriculture to give the necessary permission to publish, this interesting Report, which includes the whole working of the agricultural administration of a principally agricultural country, gives insight into the agricultural revival and the sometimes extraordinary difficulties met with and superseded, the objects pursued, and the results attained in this wide field of agricultural policy. The agricultural administration and policy of Hungary is certainly more interesting than in any other country, because the farming industry in Hungary includes nearly every kind of agricultural production under moderate climate; every kind of cultivation, from the northern pine-forests down to the southern vineyards and rice culture; every

size of farming, from the large estates of thousands of acres down to the very small cultivation of peasant proprietors; every degree of farmers, from the remarkably intellectual Magyars to the low-cultivated Slavs and Roumanians; all the different scales of cultivation, farms, and cultivators. And, dealing with all those in the high road of progress, includes of course various necessities, various methods, and a very large variety of practical measures. These are the reasons, why an account of the Hungarian agricultural revival should certainly be more diverse and perhaps more interesting for any student of practical politics than an account of the same subject in some more unified country, say, in France or Denmark, in Germany or Ireland.

Of course the present Report deals only with one side of the whole question, namely, with the part played by the State.

But, in the first place, it is absolutely impossible in a Blue-book having an official character to enumerate the individual efforts of the farming community. Works on agriculture, as Young's, Lavergne's, or Rider Haggard's, are certainly of a very different character from what an official report is expected to be. Not the methods and ways followed by individual farmers in their industry, but the agricultural policy of the State, *i.e.*, the policy of the community directed to a certain industry, is the question in point, which must be treated in official reports on agriculture.

Now, I am perfectly aware that the question of State interference is one of the most disputed problems of the economical policy; and I fully admit the absolute truth of the rule laid down by John Stuart Mill, that *laissez*

faire should be the general practice: every departure from it, unless required by some great good, is a certain evil (Book V., chap. xi. § 7). But—as he himself admits—in the particular circumstances of a given age or nation, there is scarcely anything really important to the general interest which it may not be desirable, or even necessary, that the Government should take upon itself, not because private individuals cannot efficiently perform it, but because they will not.

Admitting this rule, the whole question resolves itself into the question of practicability; whether or not, in the concrete case before us, the circumstances do or do not require State interference; which is the practical course to be followed? State interference or the *laissez faire*?

There are several special drawbacks in agricultural industry, which are practically unknown in any other sphere of modern human activity. The work of farmers is done apart, not in close companionship with each other; farming business is much more complicated than any other kind of business, comprising, in fact, a regular series of businesses of many varieties, and always dependent on absolutely uncontrollable external phenomena; farming work cannot be performed, as a rule, in a strictly regulated manner; generally speaking, agriculture is much less independent of natural forces and actual circumstances, than any other human work.

The conclusion is obvious. The agricultural industry of every nation and age has been unable to follow the paths of progress as quickly as any other industry, and so has been entitled always and in every country to the good-will and interference of the community far more than any other industry.

That the progress of the Continental peoples was in general much slower than that of Great Britain is, I think, a point which cannot be denied. We Hungarians had the privilege of free institutions since the building up of our State, more than a thousand years ago, and our freedoms and liberties were confirmed by our great Charter, the Bulla Auræa of King Andrew II., in 1222, only seven years later than the Magna Charta of King John, but still our economical progress was very slow, because of the perpetual wars with foreign invaders, and because of the unending constitutional and religious struggles. Even in the present day, the differences in race and religions make their effects visible, not only on the *personnel* of the agricultural industry, but also on the mode of farming itself.

So we have, unquestionably, more reason or excuse to invoke State interference in agriculture than a more highly developed farming country, such as Great Britain. The amount of State interference in agriculture adopted in the last few years in Hungary may be regarded, at the first glance, as going too far;¹ but without expressing any decided opinion on the subject—perhaps I might reply to the objections raised in different quarters the French proverb: “*Tout comprendre—c’est tout pardonner.*” You can almost rely on this fact, that in a free country every interference of the State in agriculture, as in any other industry, is pretty nearly justified by the urgent necessity of practical circumstances, following the rules laid down by John Stuart Mill.

Certainly the whole tendency of our own age is much

¹ This was, indeed, the opinion expressed by many of the Essex farmers when they visited Hungary. See the excellent work, *Visit to Hungary*, compiled by Mr. T. S. Dymond.

more inclined to the widening, than to the narrowing of this interference. We cannot maintain, that it is a failure. The compulsory school attendance, factory laws, Workmen's Compensation Acts, a long series of legislation on children's, women's work, &c., in every civilised country build up a useful kind of State interference, justified by the dire necessity. The international actions proposed, and partly initiated, against cartels, trusts, combinations, &c., or advocating uniform measures against diseases, adulteration, &c., are justified exactly by the same necessity. We are legislating to supply the wants of our own age, and, because of the ever-increasing complications of our social development, the calls on State interference are ever increasing.

But agriculture was in fact always a favourite object of legislation. The land tenure systems made the real backbone of the Greek and Roman, as well as of the mediæval States. The agrarian tendencies in the establishing of protective duties have been paramount in Great Britain in the last century, and in the Continent at the present time. It is evidently one of the greatest fallacies to suppose, that the whole question of agricultural policy is exhausted by these two historical phases of it; the present volume shows, that the State interference has very many more channels to help the agricultural industry outside these two important questions of land tenure and protection, which are already nearly settled in every civilised country, and nowhere from the exclusively agricultural points of view.

Now, if we are led to omit these two questions, as practically settled ones, from the vocabulary of our agricultural policy (as they are absolutely omitted exactly for

this reason in the present volume), the problem before us is a much more complicated one, and one which it is quite impossible to solve by any cut-and-dried means. Every case must be judged on its own merits: whether in the given concrete case the interference of the State is justified or not.

Fully admitting, that Government aid, when given merely through lack of private enterprise, should be so given, as to be, as far as possible, a course of education for the people in the art of accomplishing great objects by individual energy and voluntary co-operation, my conviction is exactly, what Mr. Pratt says in his valuable *Organisation of Agriculture*: "The agriculturists should rely to the fullest possible extent on the two great principles of self help and mutual help, and depend as little as possible on State aid," and the object of the State interference must be mainly educational, in the wonderfully lucid words of Sir Horace Plunkett, "to help the agriculturists to help themselves."

With this object in view, the paths of progress are innumerable. Every means adopted must be suited to the actual circumstances, and just this is exactly the justification of the policy adopted. Not only the agricultural policy of each country is adapted to the actual circumstances, but the actual agricultural policy of the same country varies enormously according to the different exigencies; for instance, not only is the English land tenure policy quite different from the Irish, but the system of small holdings also aimed at by various measures in England and in Ireland is fundamentally different; indeed, I cannot trace such a far-reaching State interference between landowners and cultivators as was introduced by Mr. Gladstone's Irish

Land Act, nor such extensive powers given to the State towards proprietors as are provided by Mr. Wyndham's Irish Land Act (Schedule 49), nor such a radical State interference with land tenure, as the new Irish agrarian policy. But the agricultural policy of the United Kingdom goes still further in satisfying different actual needs. The Congested Districts Board, both in Ireland and Scotland, has still wider interference than the Irish Board of Agriculture and Technical Education; and the same objects are aimed at, the same policy is administered in three different ways, by three different boards in the same State, according to local needs, on the general rules laid down by John Stuart Mill.

All State interference, however, must have an educational influence. The wide field of education is not exhausted by technical education or by all the instruction furnished for agriculturists; nor by the fostering of the very valuable and highly useful Farmers' institutes on the model of the United States and Canada; nor by experimental and research stations, by agricultural museums, by model farms, &c. This double aim of State aid and agricultural education is very effectively promoted by the natural channels for both furnished by the introduction of the co-operative movement into agricultural life. The State can justifiably help this movement as far, as it is not inimical to individual enterprise.

Still more justifiable is this interference in a State, where vast domains and forests are State-owned, and where accordingly those highly valuable representative characteristics of landownership must be made to be felt by common interests. If it is not only the interest but also the duty of the State to encourage agricultural

education and research, as is clearly admitted by the yearly increasing aids and grants of the Agricultural Boards, England not excepted; if it is not only the interest, but also the duty of the State, to encourage the opening of local industries, as recommended by the various Agricultural Organisation Societies, evidently the State, when landowner, has a double duty to take the lead. So it is in forestry and pedigree-breeding, and various minor, but very important branches of the agricultural industry. May I add that—owing to this landowner capacity—the maximum of the State-aid given to agriculture in Hungary, paid by the taxpayer, in no year exceeded the comparatively modest sum of £800,000?

I shall not labour further on the fact, that everywhere the extension of State interference is loudly demanded. It is a very peculiar phenomenon of our own age. Not only the active or dormant Socialistic parties, but also the eminently Conservative farming interest are subject to this tendency. The free-trading peasant proprietor of Denmark, the agrarian protectionist in France, the large landowners in Germany, the various “corners” and “rings” in the United States, as well as the wealthy Russian nobility and the poor mujik, &c., are all in agreement in this matter; and there have been very important and weighty voices in Great Britain, also, advocating an extension of State interference in agricultural policy, chiefly the extension of the powers of the Board of Agriculture, from the late Lord Winchilsea down to the present day, as was demonstrated by the recent debate in the House of Commons on the rural policy, as well as at the Farmers’ Club by Mr. R. Orlebar in his lecture on this subject; by Mr. T. S. Dymond in his lecture on State-

aid and agriculture at the Fabian Society, &c. All those questions, however, must be judged on their own merits.

My concluding point is this: State interference in agricultural policy is justified in leading and educating, and, of course, in a transitory character, still more so, when the State is a large landowner itself; but it must be restricted, discriminately used, and only temporarily, as an exception to the rule of self help and of mutual help; helping the agriculturists to help themselves.

I sincerely hope that the perusal of the present volume, clearly showing the practical aims of an actual administration in a country with singularly difficult varieties of climate, soil, farming, and men, and showing the tendencies of the administration to develop all the various branches of the agricultural industry, leaving out the questions of land tenure and fiscal policy, will evoke some interest, perhaps even be useful, to those seriously engaged in the important work of a sound and efficient agricultural policy.

A. GY.

LONDON.

AGRICULTURAL HUNGARY

THE climate of Hungary is divided into two portions, that of the mountain districts and that of the plains. Great extremes are not met, because it gradually becomes milder as one progresses from the mountains to the plains. The Carpathian chain keeps back the cold north winds and turns the hotter currents coming from the south into the interior. The average temperature of Hungary—with the exception of the higher lying districts—is higher than that of other countries of the Continent in the same latitude. Four-fifths of the soil produce maize and grapes. The rainfall is very variable in the different districts, and, especially in the plains, drought and flood alternate. In Hungary it is essentially a case of the “survival of the fittest”; extremes of climate destroy anything which cannot become accustomed to them. The soil varies from the mountain districts with the soil formed from the crumbling of the primitive granite and gneiss rock, to the dark, rich soil of the interior. The celebrated wines Tokàj, Mátra, Badacsony, Somlyó, Pozsony, Versecz, and Arad, are produced on soil made by the crumbling of rocks and volcanic formations. The mud washed down from the rocks of volcanic formation has had an excellent fertilising effect. The rivers of Hungary have often done great

damage to agriculture by inundation, but are now being better controlled by the erection of defence works against floods. The territory protected against floods now amounts to 3·186 millions hectares, the length of dams 5,519 kilometres. The total cost has been nearly £10,000,000. The increase in value in land amounts to £40,000,000, due to these works.

With regard to the population the Magyar of the plains is a good worker, extremely intelligent and industrious, and has special aptitude for tilling and stock breeding, but lacks commercial instincts. The Székelys of Transylvania are better fitted for commerce. Bánság, Transylvania and Upper Hungary are largely settled with Germans, who are industrious and thrifty. A large population of Slavs is domiciled in the northern and north-eastern counties, and live in less numbers in the south. Cattle breeding is their most popular occupation. In the summer they travel through the plains doing harvest work. The eastern districts are largely populated by the Roumanians, who are religious, thrifty, and have a tendency to a nomadic life.

In Hungary 30,792,868 hectares of land are under cultivation, leaving an area of uncultivated land of 1,540,352 hectares. Ploughed land occupies 43 per cent. of the former total, and is increasing in area. Owing to phylloxera, the area of vineyards decreased, but by the application of requisite remedies is now regaining its former dimensions. The proportion of fallow land to arable land has fallen from 20 per cent. to 10·73 per cent. This shows substantial progress. The principal products of the arable land are as follows :

	Hectars.	Per cent. of the area.
Corn crops.....	7,228,295	59·93
Vegetables.....	45,404	0·38
Root and green crops	3,489,907	28·93
Commercial plants	164,419	1·36
Forage crops	1,042,249	8·64
Garden crops.....	91,450	0·76
Total	12,061,724	100 per cent.

Thus more than half the land under crop is sown by cereals. Wheat growing is increasing, and is the most important product of Hungary, which is shown by the high development of the milling industry. The product per acre is 40 per cent. in average less than that of England. The acreage under rye is 9 per cent. of the whole arable land, and is on the decrease, wheat taking its place. Barley, especially for brewing, is produced on an acreage of 11 million hectars. Ten per cent. of the acreage under crop is sown by oats. The production of rice has received a successful start.

Improvement in stock-breeding and domestic economy is causing the increase of the area under roots, green and forage crops, and the extension of meadows. Maize stands next to wheat in production. The crop is a sure one, and gives work to women and children. The allotment system enables the poor workman to provide himself with maize for the winter, and to feed his pigs without expense. The production of potatoes, forage, and sugar-beet is steadily increasing. With regard to commercial plants, the production of rape seed is decreasing, but tobacco has a good future before it, and considerable quantities are sold to the Austrian tobacco-monopoly, Holland, Germany, Italy, and the islands of the Mediterranean. The production of flax, hemp and hops is being carefully assisted by the State with good results.

The produce of Hungarian gardening consists of fruit,

vegetables, and flowers, and in the last twenty years the area utilised for this purpose has doubled. Orchards occupy one-half of the garden area, kitchen gardens one-fourth, and flower gardens one-fourth. But there still exists a lack of capital and experience. Each year, however, chiefly through State and communities' action, a million fruit trees are planted. The State also are taking a lead in supplying the requisite education, and establishing kilns, wine-presses, and distilleries.

Phylloxera has effected great ravages in the vineyards of Hungary since its first appearance in 1875. Aided by the State, however, by means of loans, &c., much of the devastated land has been reclaimed, and the wines of Tokaj, Eger, Sashegy, &c., of world renown, have maintained their position in the world's market. American grafts have also been imported by the State to help the vine growers, and viticultural schools have been established for purposes of education in vine cultivation.

Great attention has been paid to forests and the export of wood, of which oak and conifers are the chief Hungarian produce. The State has passed strict acts dealing with this matter, and the area of forests on otherwise barren and useless territory is increasing owing to the establishment of State forest attendants and schools, &c. Hungary possesses a flourishing timber trade. There are 9 millions of hectares of forests in Hungary, of which 1½ millions belong to the State and 3½ millions to other corporations.

In the breeding of farm stock the State has taken a very prominent action. It has its own breeding farms, and supplies to the people breeding animals on most favourable terms. Great care is taken by the appoint-

ment of inspecting officers to avoid epidemics. The quality and quantity of cattle in Hungary have greatly improved. A very large business in milk produce is carried on by the co-operative societies, which are fostered by the State. For horse-breeding, State stud farms have been established (the first one in 1785) to breed animals suited to the different districts of the country. Private breeders also co-operate with the State in this work. Stallions are let out on very favourable terms to communities and private farmers, and especially poor villages. The State spends 3,000,000 crowns per annum on this work. The breeding of sheep is important, but on the decline. Pig-breeding, which was much depressed after 1895 by the ravages of swine-fever, is now regaining its former position. With regard to poultry-breeding, so important to the poor farmer, experience has taught that the best breeds available are the crossing of Orpington and Langshan, with the better indigenous breeds, and the Peking duck and the Emden goose. The export of poultry and eggs in 1901 of Hungary amounted to 72 million crowns. Co-operative societies are taking a great part in this work. Bee-keeping and pisciculture are greatly fostered by the State and have proved themselves a fruitful form of income. Sericulture in Hungary is managed by the State, but the production itself is a private undertaking. The State produces the eggs for distribution. To-day 100,000 families in 2,500 communities occupy themselves with the cultivation of silk-worms. The Royal Hungarian Superintendent of Sericulture appoints commissioners to supervise the whole treatment.

Thus it can be seen that the value of agricultural products in Hungary is increasing. The land is being

quickly used up by reclamation, &c. The future lies in the direction of more intensive development.

The following statistics supply information as regards the distribution of the land in Hungary amongst the different proprietors:—

Size.	Total amount in holds.	Per cent. of total area.
Up to 5 holds	2,550,172	6·15
From 5 to 100 holds.....	20,113,953	48·44
From 100 to 1000 holds ...	5,907,233	14·22
Over 1000 holds	12,948,920	31·19

Hungarian Weights, Measures, and Money.

Metercentner } = 220·46 lbs.	Crown = 10 <i>d</i> .
Meterquintal } = 220·46 lbs.	Filler = $\frac{1}{10}$ <i>d</i> .
Hold = 1600 □ ^{ol} = 1·43 acres.	Florin = 2 crowns = 1 <i>s</i> . 8 <i>d</i> .
Hectar = 2·471 acres.	Kilometre = 0·621 miles.
Hectolitre = 22·01 gallons.	

COMMASSATION.

This is the name given to the proceedings taken in the law courts by a landowner, who has possession of several separate portions of land in one neighbourhood, and, with the agreement and consent of the majority of his neighbours, wishes to interchange these portions so as to make up one united holding for himself.

THE STATE AND
AGRICULTURE IN HUNGARY

THE STATE AND AGRICULTURE

INTRODUCTORY

THE intention in generally encouraging the agricultural industry was directed by the desire that our farmers, in the first place the small farmers, should be convinced of the advantages of "qualitative production," of using better seeds, producing more commercial plants and, in general, of farming on a more scientific plan.

Besides the experimental stations, both the agricultural colleges and the State estates cooperated in practical experiments and researches in developing various kinds of plant-breeding. And where this activity was not sufficient in itself, State grants were given directly for the different kinds of breeding. The principal aim since 1896 has been to make the reliable seeds of corn, which are produced in great quantities on the State farms, generally accessible to every farmer.

The Government also took care that, after elementary attempts on a larger scale, the lands of the poor should not remain uncultivated. Accordingly, they gave on advantageous terms, on credit, or, in some exceptional cases, quite free, seeds for sowing to some farmers of the

famine stricken neighbourhood, and these seeds were carried on the State Railways free or at nominal charges.

In consequence of the abnormal weather in 1897, of the enormous gales in 1898, of the flood on the Danube in 1898, and the special misery of the peasantry in the highland congested districts, the want of seeds amongst the poorer farmers gave considerable cause for anxiety. To remedy this evil the Minister of Agriculture in the years 1897–1900 helped the stricken counties thus:—he gave them partly free, partly on advantageous terms payable after harvest, seeds:—

Metercentner = $\frac{1}{16}$ th ton.	Wheat.	Rye.	Barley.	Oats.	Maize	Pota- toes.	Fodder seeds.	Value.	
								C.	F.
1897. Free	5,107	567	—	—	—	—	—	141,311	66
On advanta- geous terms	31,303	900	—	—	—	—	—	817,829	56
1898. Free	—	—	1,176	491	—	992	275	43,171	16
On advanta- geous terms	5,901	2,307	5,640	3,713	666	17,051	—	464,733	52
1899. Free	—	—	—	—	—	—	—	—	—
On advanta- geous terms	34	2,648	266	—	—	—	—	41,544	50
1900. Free	213	—	—	—	—	—	—	—	—
On advanta- geous terms	315	—	—	759	479	2,574	52	29,916	93
1901. Free	—	—	—	—	—	300	3	1,530	71
On advanta- geous terms	21	—	75	275	—	2,842	50	34,627	44
1902. Free	51	5	—	—	51	300	2	3,302	76
On advanta- geous terms	5,927	2,552	783	914	601	2,981	34	165,626	16

As the small farmers of the highlands were suffering greatly from want of seeds of a satisfactory quality and quantity, the Minister of Agriculture distributed between them in each year on advantageous terms (2 crowns per metercentner), and in some very deserving cases, quite free, 200—300 tons of potatoes for seeding purposes.

As a consequence of this plan it is found that the potatoes grown in the highlands are becoming more prolific, hardier and better in quality.

To accelerate this process, the Minister of Agriculture, following the advices of his own permanent experts, contracted quite recently with some larger producers to grow the best kinds of potatoes in larger quantities; these to be bought by the Minister, at a price fixed in the contract, for distribution amongst the small farmers for seed.

The Minister of Agriculture made an agreement in 1901 with three of the larger farms (in the counties of Bars, Nyitra and Szepes) to grow special kinds on their farms, the seeds to be given by the Minister. The seeds grown on these farms are distributed in the next year to some smaller farms owned by clergymen, schoolmasters, or some other reliable persons under the same conditions, *i.e.* that they shall be distributed in the following year amongst the small farmers. This method was introduced in 1902. Besides this, the Board distributed in the eastern counties of Csik and Háromszék 30 tons of seed potatoes.

Special attention was paid to brewer's barley, the value of which was not so much exposed to the general decline of prices, to preserve its export markets.

In order to extend the production of this kind of grain the Minister of Agriculture caused seeds of reliable quality to be distributed among the farmers through the farmers' clubs; he helped by grants the brewers' barley fairs organised by the farmers; and lastly, in order to promote marketing, he helped the formation, in the counties best adapted to grow the brewers' barley, of cooperative societies for its production and marketing, and for collecting, cleaning, and equalising the produce for the improvement

of the output. Seeds of a reliable quality are distributed through the farmers' clubs to the farmers on advantageous terms, the quantity of seed thus distributed being, in 1902, 110 tons. Besides this, the most important rules for cultivating barley are described in a short popularly written leaflet and distributed freely. Larger farmers are also helped in this manner: the Board giving them reliable Hanna-barley seeds at cost price, and paying carriage.

The rebate of 10 per cent. given by the State Railways for a considerable time, for carrying the barley to Fiume for export, was increased during the campaign of 1900-1901 to 15 per cent. to meet the competition on the foreign markets.

In recent years the quality of the Hungarian wheat has been in some quarters, although there has been absolutely no foundation for the statement, described as slowly deteriorating. To prove the absurdity of this statement, the Minister of Agriculture ordered that the quality of the Hungarian wheat and the working of those factors which could have any influence on the quality, should be systematically and permanently the object of a special scientific research.

Among the commercial plants there are hemp, flax, hops, and tobacco, the culture of which has been recently encouraged, besides the sugar-beet.

As for the cultivation of hemp and flax, notwithstanding the special favourable circumstances, the fact remained, that both the quantity and the quality in hemp had been deteriorating, and the flax cultivated did not exceed the needs of a home industry, the quality being very inferior. So the Minister of Agriculture paid special attention to this. In order to improve the quality he distributed yearly a quantity of hemp seed from Bologna, and gave

grants to those industries connected with the preparing and marketing of the products. These industries are obliged to buy the hemp at a fixed price from the growers, and to allow the use of their works to small farmers at a moderate charge. In the county of Békès, with some State aid, a hemp-buying hall was started in 1899, and a second one was in preparation. At Szarvas an artificial hemp-damping station was started; and the farmers are working on the same lines in the counties of Szabolcs, Szatmár, Torontál, and Iász-Nagy Kun Szolnok.

The hemp culture is promoted by diffusing the necessary knowledge, and helping to found common damping places; but special inquiries are just now going on for a plan to still further encourage this industry.

The flax was formerly grown only in a sufficient quantity to satisfy the small household needs, because there were no factories to utilise the stems and to market the flax. It was absolutely necessary to turn the hand looms to organised factories in order to develop the flax growing. For this purpose depôts for buying and preparing the flax were started in three counties (Komárom, Szepes, and Udvarhely) by means of grants made to the counties' farmers' clubs of these counties. Movements are going on in different parts of the country on the same lines, as in the county of Somogy at Csurgó, where a third of the capital expenses was promised as a grant, and in the flax-growing districts of the counties of Zala, Bihar, Trencsen, and Temes. To supply foremen, some of these works educate young men, after they have finished at the agricultural schools. The State Railways and the Kassa-Oderberg Railway Company reduced their rates on the flax carried to those depôts by 20 per cent. Furthermore, to help this industry, in the year 1898 2 wagon loads (a railway car load is 10 tons), in 1899 3, in 1900 5, in 1901

8, in 1902 5 loads of Riga flax-seed were distributed by the Department, partly free, partly on advantageous terms. To stimulate the flax-growing the Minister has appointed a special instructor since 1898, whose duty is to educate the farmers in flax-growing at their own places, and to distribute popularly written pamphlets relating to flax-growing.

The great interest taken by the farmers throughout the land justified the increase of the cultivation of commercial plants, and the Minister of Agriculture thought the time had arrived to organise this industry on a wider basis and to secure the working up of these materials at least for half-product. There is provision to do this in the new Bill for investments introduced in 1903.

The plan proposed with this object is to help by grants on the following lines those associations, etc., which are engaged in the working and marketing of the hemp and flax products.

1. Cooperative societies, private men, or limited societies willing to start hemp and flax works corresponding to the requirements laid down by the Minister of Agriculture, and pledging themselves to buy equivalent quantities of stems at fixed prices according to quality, can obtain a State loan, without interest, up to 50 per cent. of the building and installation costs, but not exceeding the sum of 75,000 crowns. The agreement may provide that at least a reasonable percentage of the whole should be bought from small farmers. The repayment of this loan commences in the eleventh year after starting business, and is to be effected in fifteen equal yearly payments.

2. Cooperative societies, starting smaller works, can obtain a grant not exceeding 40 per cent. of the building and installation costs, and not exceeding 35,000 crowns, when at least 50 per cent. of the shares are held by small

farmers, and 60 per cent. and 50,000 crowns if more than three-quarters of the shares are in hands of small farmers.

3. Parishes, local cooperative societies, farmers' clubs, starting damping places for working small farmers' produce, can obtain a grant not exceeding 80 per cent. of the building cost of the works, and not exceeding 5,000 crowns, provided they procure the water power, land, barns, as well as any other requirements for the works, and pledge themselves to allow the use of their works to every farmer at an agreed fixed fee.

4. The materials used for these works must be home manufactured. The works must be used for fully 25 years for the specified purpose, otherwise the grant is to be repaid at once.

5. The whole amount of the State loan or grant is paid after the inspection of the fully equipped works.

6. The raw material used is to be exclusively Hungarian, but the Minister of Agriculture has the right to grant exceptions from this rule for a short time.

7. The works are expected to keep a register of the stems, the producers of the stems, the prices paid, the workmen engaged, and to show it to the officers of the Minister of Agriculture.

Hop-growing, which is unable to supply more than half of the home demand, is one of the industries in process of development. There is a regular and special instructor for hop-growing, since special knowledge is required. To stimulate and equalise hop-growing the Department distributes yearly tested hop seedlings among the producers; and to promote the marketing of the hops has helped, since 1897, a hop-market each year organised in the centre of the Transylvanian hop-country, at Segesvar. The development of this market necessitated a market hall and barns, and the Government gave a grant of 6,000

crowns to the cooperative society at Segesvar for this building. In the interest of those hop-growers who are very far from Segesvar, the Government subsidises the marketing on commission of hops at Saaz, started by the National Agricultural Society. In the new colonisation, which was started on the State land purchased close to Segesvar, in the centre of the hop-growing country, every new settler gets a hop-garden for his own assistance and to start model hop-gardens. Besides this, popularly written leaflets are distributed to the small farmers in connection with lecturers.

To reduce as far as possible the cost of hop-growing, since 1898 the State Railways have carried the timber necessary for hop-growing, with a rebate of about 20 per cent. on the ordinary rates. There is a further reduction in the railway rates, since any small quantity of unpressed hops is carried on every railway at the wholesale rate.

To encourage tobacco-growing, the Minister of Agriculture, aided by the Chancellor of the Exchequer, established in 1898 at Debreczen an experimental station, whose chief aim is to test the conditions of the qualitative growing and acclimatizing of seeds of the best quality. The results of these researches are published and distributed.

For spirit distilling in connection with farming the 10th Act of 1900 is highly important. This Act, which modifies the distribution of the quantity to be brewed at the lower duty in the sense desired by the farming interest, provides, in the first place, means to increase the reserved quantity for the existing smaller factories, and in the second place gives facilities yearly for smaller factories to be established, inasmuch as when the competition is too keen, the Minister of Agriculture has the right to decide on it, of course preference being given to the small factories established in those places,

where for agricultural and meteorological reasons the principal produce is the potato, and whose yearly production is not more than 780 hectolitres in a favourable year. The aim of the Legislature was to help the most neglected parts of the country which are unable to meet the difficulties due to climatical, meteorological, or geological conditions.

A further aid was given to small factories, when the annual average potato crop fails, by the State Railways, which then carry at an extraordinarily cheap rate, the maize required for brewing purposes. There were 573 small agricultural factories in working at the end of 1902 throughout the country.

Acknowledging the great influence which farmers' clubs exercise on the development of agriculture, the Department uses every opportunity to stimulate their interest and activity. In preparing Agricultural Regulations and Bills it consults these clubs; and also helps materially their shows, lectures, or any other of their public enterprises.

The grants given on this account were in crowns:—1895, 31,662; 1896, 59,900; 1897, 104,786; 1898, 120,340; 1899, 148,572; 1900, 159,832; 1901, 198,478; 1902, 171,297. The number of these clubs—actually working at the end of 1902—was 296, and their number is yearly increasing.

In order to secure the scientific methods of agriculture, the Legislature passed an Act (XXVII.) in 1900, regulating the relations between landowners and stewards. This Act orders that on the Crown estates positions shall not be found for those stewards and clerks who are not certified; and on those estates whose proprietor or lessees are either of "mort main" or "absentees" and on the valuation of which at least 3,000 crowns is paid as land-tax, from the year when the Act is passed, situations shall

be given exclusively to certified agriculturists. The only exception is allowed for those stewards, agents, or clerks, who were already in service at the time of the passing of the Act. The aim of this Act is to secure scientific agriculture and consequently increase the productive value of the estate.

Besides this the Act regulates the relations between employer and employed with regard to the scale of wages, dismissal, and the liability for accidents resulting in death and sickness, for the greater protection of the interests of the employed. It is earnestly hoped that the humane spirit and tendency shown by the Legislature will cause the employees to devote all their powers exclusively to the interests of a rational and scientific method of farming.

MODEL PEASANT FARMS.

In order to facilitate the acquaintance of the smaller farmers with the advantages of scientific agriculture and to give them opportunities to follow examples in their neighbourhood, the Minister of Agriculture decided, in 1896, to establish successively and if possible in each county, model peasant farms. For this purpose he gave a grant to certain small farmers, who had the necessary qualifications, and he also gave some subsidy in kind, which could not be procured by the private means of a small farmer, however industrious and self-reliant he might be. The mode of selection of the requisite homesteads is as follows :—

These farmers are nominated by their respective county agricultural associations or by the county agricultural committees to the Department, which, examining the claims of the neighbourhood, decide whether model peasant

farms are to be started or not and, if so, assist the farmers nominated for the position.

The area of the model peasant farms varies according to local circumstances, the average arable land being between eight and thirty holds (about twelve to forty-five acres).

The grant is used to improve and complete the existing equipment or to replace it with one more suitable. The help in kind is given either in agricultural machines or in the manner of improvements, cattle for breeding, seedlings for orchards and vineyards, seeds and occasionally means for improving in minor points the farm buildings; also means for erecting yards, and implements for manure, and the total value cannot be more per farm than 1,500 to 2,000 cr. (£70 to £80). The farmer thus helped is obliged to conduct his farm in the prescribed manner, and to lend his implements, whenever possible, to his fellow farmers.

Under these conditions the number of the model farms established in 1897 was 9; in 1898, 18; in 1899, 20; in 1900, 22; in 1901, 21; and in 1902, 2; in the first six years altogether 82, and the movement is still going on. In most of the counties there is only one, but in some of them, where the interest is greater and the differences in farming require different types of farming, there are more. Thus in co. Torontál there are 6, in Temes 4, in Bars, Krassó, Somogy, and Zemplén 3, in twelve counties 2 model peasant farms each in existence. But there are still nine counties without any.

In directing and permanently controlling the peasant model farms the Department is in complete touch with the County Agricultural Associations and County Agricultural Committees.

AGRICULTURAL COOPERATION.

The Department, at the beginning of the cooperative movement in agriculture, could render no effective help except to encourage those public-spirited men who undertook to propagate the principles of cooperation and the necessity of it for agriculture. During the winter courses and at the agricultural lectures very great care was given to the cooperative movement and, when it became necessary, an itinerant lecturer on agricultural cooperation was appointed in 1898. The literature of agricultural cooperation has for a long time been subsidised by the Government, and in 1897 a prize essay was written, in a popular manner, on the fundamental principles and their applications, which proved highly successful and had a large circulation.

These cooperative societies get sometimes small State grants, as, for instance, where the State is a landowner, some shares are subscribed for. Those cooperative societies which are formed for cooperative production or marketing receive occasionally some grant; for instance, the Cooperative Society to Supply the Central Market received a grant in order to encourage the collecting and marketing of eggs in the home and foreign market respectively; the Central Cooperative Society of farmers received a special low rate of charges on the State Railways for feeding stuffs (which was accorded later to any farmer, provided those stuffs are used on their own farms). The Central Cooperative Distributive Society ("Bee") has similarly received some small grants from the Department in order to propagate and establish cooperative stores.

The most important results are achieved in starting cooperative dairies, as is proved by their own records.

In order to facilitate and control the cooperative popular credit movement, the Legislature passed a special Act (XXIII.) in 1898 dealing with the agricultural and industrial cooperative credit banks, one part of the shares being subscribed by the Exchequer and by the local societies, the remainder, at the request of the Minister of Agriculture, by a number of the large land-owners. Since that time the Central Bank thus founded has proved to be highly satisfactory as a working institution, and has helped the Department in every way connected with local agricultural co-operation (the local branches amounting in 1902 to 1566, with a membership of 317,851).

The action of the Department, since the foundation of the Central Bank, has been practically limited to helping the start of those local banks which, situated in the economically worst parts of the country, lack sufficient funds to place themselves on a firm basis. This help is limited to some hundreds of crowns. The greater part of such cases lie in the congested district on the north-eastern part of the country. The Department, being anxious to form these cooperative banks as the first help to emancipate the poor farmers from the local money-lenders, not only advocates strongly this system, but, as a local landowner itself, subscribes some share everywhere, and deposits some money at these banks. These local cooperative banks combine in certain of the neglected parts of the country credit giving with shopkeeping, and in these cases the cooperative shops are also eventually encouraged by the Department.

There follows later on a detailed account of cooperative societies, which were formed for better marketing of

certain agricultural produce, viz., milk, butter, eggs, and wine. And there was introduced in 1900 a new branch of the marketing cooperative societies, viz.: for marketing of corn.

The policy of the Department is to foster the establishment of corn marketing cooperative societies in connection with the Central Bank only in those places where the producers are for the most part small farmers, and where the capital required and the credit necessary is under the control of the Central Bank. These cooperative granaries are subsidised eventually in proportion to the capacity of the granary with a part of the invested capital. In 1900 there were three, in 1901 five more, and in 1902 three more started, all in connection with the Central Bank. Two of them are independent local societies, the rest are connected with the local cooperative credit bank; some of them were started jointly by two or three of these local credit banks.

Last year it was proposed to start some cooperative granaries on a larger scale with State aid, and the first one, in Monor, is actually started. The results in cooperative marketing of corn are highly satisfactory, and the new Bill on investment proposes some further development of the scheme.

To introduce the cooperative principle in the insurance business the Department joined with the Agricultural Congress to procure the necessary capital by subscribing 400,000 crowns (£16,600) in shares from a special fund at its disposal.

THE ADMINISTRATION OF THE ACT (XII. OF 1897) ON AGRICULTURE AND AGRICULTURAL POLICE.

The Act on Agriculture and Agricultural Police (12th of 1897) embraces a large series of questions connected with agriculture and requiring legislative regulations, and produced some quite new institutions for fostering agricultural progress by administrative work. The Act was restricted to the laying down only of general principles, because circumstances of agriculture varied in the different districts of the country, but it gave the local governing bodies power to issue special local orders. The municipalities had, in consequence, to draw up regulations on the lines laid down in the Act itself:—

1. On agricultural committees in the counties.
2. On agricultural committees in the districts.
3. On cattle, swine, and sheep-breeding.
4. On shepherds and on the control of grazing animals.
5. On the maintenance of fences.
6. On seedlings and arboriculture.

The orders relating to agricultural committees both in counties as well as in districts, on breeding of live stock, on shepherds and grazing, and on the maintenance of fences, were drawn up and administered with very few exceptions all over the country, and were executed with the cordial cooperation of the officials of the State.

The greatest difficulty was experienced in connection with the drawing up and adopting of the orders relating to seedlings and arboriculture.

In order to facilitate the work of the local bodies, the Minister of Agriculture drew up in 1898, with the help of a departmental committee of experts and practical administrative men, a model order which he sent to the local bodies; but the difficulties arising from the great variation in local necessities could only be surmounted in some of the counties, and the regulations in question are even now not in full working everywhere.

Some of the counties had, before the Act of 1897, regulations relating to seedlings and arboriculture. But these orders were not sufficient to secure practical uniformity, since they did not contain those regulations which assured correct execution, and therefore much work was left undone.

The principal object in the newly drafted orders is, to handle the seedlings of the parishes according to regulations drafted under the control and cooperation of the districts agricultural committees. The works of arboriculture are regulated on a plan drafted by the primary administrative organ of the local government in cooperation with the State's experts; and not only the seedlings, but all the trees on common roads are under the control of special tree-inspectors chosen from those schoolmasters who are experts in arboriculture. It is to be hoped that if the orders are drafted on these lines, and properly adapted to the local circumstances and persistently worked, the difficult aims of the Parliament will be attained.

As for the clauses of the Act, which deal with live stock, the work of the district agricultural committees, which have the control of the male animals used for breeding purposes, receives powerful cooperation, formerly

from the live-stock inspectors, and later from the 17th Act of 1900, which organised at the cost of the exchequer a complete veterinary service.

These district committees are experts in any technical question relating to agriculture which is to be decided by the administrative bodies in connection with the 12th Act of 1897, and the general tendency is that everywhere where those questions are to be decided, local circumstances and agricultural claims shall have a hearing.

The regulations relating to the fallow-system and common grazing are duly executed all over the country.

The practice of controlling the distribution of common grazing territories by means of special Governmental permits was found a salutary regulation, since the permit entailed definite economical proof of the advantages of the distribution. It often happened that those interested in the distribution have changed their mind or at least accepted readily the refusal given to their demand, because the district agricultural committees, working as experts, were able to show clearly the disadvantages of the distribution, from a careful consideration of the case.

In every case, when the question at issue concerns the distribution of a large area, the competent live-stock inspector is asked to give his opinion.

The Department conceded in late years, only in very exceptional cases, a full distribution of grazing territories. Partial distributions were conceded in those cases where the territory to be distributed was confined in smaller parts between arable lands, or was unfitted for reasons of the quality of soil for grazing purposes, or was adaptable, being sandy, to viticulture or for building purposes, or was too small to be of any significance.

The closer control of the question of common grazing, as well as the improvement of the still existing common

grazing territories, has mitigated very considerably the troubles caused by unwise distribution and grants.

The Act organised quite new claims on the local government for the control of the field paths and common roads.

Field paths and common roads are at the present time very important (since the quick and cheap harvesting and marketing of the produce is one of the essential conditions of successful farming); so it was the duty of the parish councils in the first place to examine the existing roads, and to proceed against any encroachment or damaging of the roads before the proper authorities. In those parishes where the assessment survey precedes the readjustment of the property transfer books, they were obliged to make absolutely clear the questions before the survey, in order to have definite regular conditions in regard to common roads at the time of the survey. It is a pity that up to the present time in the assessment surveys there are only the actual common roads specified, and most of the parishes have no other surveys; the final regulation of these common roads is yet to be made. Of course, the improvement of the common roads is absolutely impossible, except in those parishes where the preceding questions are already finally settled. The general principle, however, in executing the Act is, that the parish councils are obliged to keep in good order these common roads and field paths at least in the harvesting and ploughing time.

The protection works against destructive floods were commenced under Schedule 13 of the 12th of 1897 in some parishes of various counties; these works are still more fostered under the new 19th Act of 1898.

The number of agricultural trespassers since the enforcement of the Act has increased, but this is probably only

temporary. The majority of these cases were for forbidden grazing and trespass. These are all in connection with the uncertainty of fences and disorderly state of field intercommunications. The number of agricultural thieves of any importance is, however, now decreasing, simply because most of them are clearly noted in the first instance following the institutions of the agricultural police, who supply the evidence against them, and thus prevent their occurrence in the future.

The Department, however, was obliged to inquire into any case and complaints brought before it, and where the legal basis and reasons for a decision were to be found, gave judgment on every occasion.

The administration of the 12th Act of 1897, and especially the most interesting cases relating to common grazing and the use of field paths, necessitated in numerous cases a local inquiry, which was duly carried out by the agricultural experts. And so many cases, unduly exaggerated by the bitterness of opposing interests, have found pacific solution to the satisfaction of all parties concerned. To carry out the order mentioned in the 58th schedule of the Act on agricultural police for the preservation of useful birds, a long inquiry was held in certain counties, with the help of experts, to decide which kind of birds are worthy of preservation, and on this evidence a departmental order was issued.

Lately there were several complaints with the object of altering the existing regulations for commassation¹ and estate conveyance, as much from the proprietors as from the technical experts and from the judges. The principal complaint was, as stated in the petitions, that the whole procedure is too costly and wearisome and does not assure the satisfaction of the agricultural interest.

¹ See preface, p. xxii.

In the year 1897 the County Council of Moson started an agitation for a new Act on commassation, and sent a fully drawn-up memorandum to the Agricultural Minister, and at the same time asked all the County Councils of the realm to support its proposals. On this initiative the County Councils of Tolna, Győr, Somogy, Temes, Arad, Maros-Torda, Jasz-Nagy Kun Szolnok, Ugocsa, Maramaros, and, with some alterations, Pest, Pilis, Solt, Kis Kun, made similar representations. In the following years the National Agricultural Association dealt several times with this question, and requested likewise the introduction of a new Bill to regulate the procedure at commassation in a more satisfactory manner.

The Departments of Agriculture and Justice inquiring into these complaints and representations, decided to begin the preliminary work necessary for introducing the required Bill. They drew up, in the first place, a list of questions relating to the agricultural side of the question of commassation and estate conveyance, and the questions were sent out by the Minister of Agriculture to all the agricultural bodies, municipalities, and some experts. At the same time certain officials were appointed to study the question of commassation from the point of view of the neighbouring agricultural interests and of practical complaints.

The principal points of the answers were as follows:—

1. It is desirable to pass a new Bill to regulate the procedure of commassation on the same lines all over the country.
2. The procedure at the commassation must be much simpler than the actual procedure in the Transylvanian parts of the country.
3. It is necessary to safeguard the agricultural standpoint in the procedure.

4. The procedure must be quick and cheap.

5. The transformation of the transfer-books before and after the commassation must be quickly effected.

6. The officials of the Assessment Survey must co-operate at the checking of the commassational surveys, and the Exchequer should buy the surveys made for the commassation for the sake of the Assessment Survey, paying a requisite sum.

7. Permission should be given to pay the expenses of commassation in instalments; the most important impediment and burden of commassation being the expenses, and principally the sum, which must be paid in advance.

8. Finally, it is absolutely necessary to regulate again the theoretical and practical qualification of those engineers who contract for commassations, and to control their work in an effectual manner.

On the ground of these propositions, and after working up the whole material, the necessary representation could be made to the Parliament.

AGRICULTURAL STATISTICS.

The Department of Agriculture has issued for many years reports on the condition of both the home and foreign crops, for the use of the farmers, and these have considerably increased in scope. A reliable corps of correspondents is at the service of the Government, and is voluntarily recruited from the best of the farmers, who make observations on the conditions of agriculture and collect all the data for agricultural statistics. Their number increases yearly. The number of these correspondents was in 1895 only 875, but in 1902 already 1,143.

There are, besides these, eighty-seven correspondents dealing with insect pests, who contribute by their experience and reports to the quick discovery of the evil, and, if possible, to its prompt abolition.

These agricultural correspondents held a congress at Budapest on 3rd December, 1902, to increase public interest and action in the matter. During the discussion they made some very practical propositions.

The correspondents furnish reliable information concerning agricultural labour, condition of crops, and the forecast of harvest. These details are published by the Department of Agriculture in a short summary each fortnight, and also, since 1899, every ten days in the summer months. And when all the crops are gathered at the end of October the correspondents draw up, on the basis of the known data, a final valuation of the produce of the agricultural year. These reports are summarised by the Central Statistical Office for districts and counties, and then published. In 1900 the Hungarian Government made an agreement with the Government of the United States of America to exchange their reports on the condition of the crops in the summer months by telegram.

The same correspondents collect year by year the details of agricultural wages, and so statistics of the agricultural wages are issued. These show, according to counties and districts, in the four seasons of the year separately, the wages of men, women, and children, with board or without, and supply the necessary remarks on those contract-works which are still in fashion in some counties.

These statistics, which have been collected for more than ten years, show that the agricultural wages of the country are slowly but continuously on the increase.

THE AVERAGE DAILY WAGES WERE IN FILLERS :

Year	Men.						Women.						Children.					
	Spring.			Summer.			Autumn.			Winter.			Spring.			Summer.		
	With board.		Without board.	With board.		Without board.	With board.		Without board.	With board.		Without board.	With board.		Without board.	With board.		Without board.
	board.	Without board.	board.	board.	Without board.	board.	board.	Without board.	board.	board.	Without board.	board.	board.	Without board.	board.	board.	Without board.	board.
1891	66	100	102	164	176	118	56	80	80	46	70	66	34	48	44	70	36	58
1892	76	108	132	178	192	128	62	88	90	54	78	82	36	52	54	74	42	60
1893	78	112	128	176	186	128	60	90	90	54	80	82	116	54	52	76	40	62
1894	80	112	134	176	192	126	64	90	90	56	80	86	116	36	54	80	40	62
1895	78	114	130	176	190	126	62	90	90	54	82	84	116	34	54	76	38	60
1896	72	104	100	142	160	122	62	90	90	50	80	74	108	34	54	76	36	58
1897	74	104	110	150	168	118	64	88	90	52	78	78	112	34	54	76	36	58
1898	70	98	100	136	154	114	56	80	80	50	74	72	102	38	54	78	34	56
1899	78	108	132	176	192	127	64	90	90	56	80	85	116	36	54	77	42	65
1900	77	111	120	174	194	127	58	91	91	56	81	84	116	38	54	77	43	61
1901	78	112	127	175	191	127	64	92	92	56	82	83	119	37	55	79	42	61
1902	81	112	130	176	193	128	64	92	92	56	83	86	118	38	57	79	42	63

Lately the statistics of the agricultural wages have begun to make clear that question so important from the sociological point of view, viz., the actual earnings of an agricultural labourer in different parts of the country.

The Department publishes every year an "Indicator" to explain to the correspondents the principles and aims of their service. This book is published yearly in ever-increasing size, and one finds in it advice for obtaining a correct view of agricultural phenomena and explanation of all branches of agricultural administration.

When arranging our economical relations with Austria, we made the agreement that our Consular offices should send their periodical reports on agricultural conditions direct to the Minister of Agriculture. These reports when drawn up are published in the official paper of the Department, "Földmívelési Értesítő" ("Agricultural Adviser") as well as in other papers.

On the same occasion it was agreed to organise (and this was actually carried out in 1900) the service of Agricultural Commissioners in those foreign countries which were the most important from the point of view of our agricultural and economic interests. These agricultural Commissioners are under the patronage of the accredited diplomatic service and have their definite position, but are exclusively the organs of the Hungarian Government. Their aims are to study the agricultural conditions and institutions of those foreign countries to which they are appointed, on behalf of Hungarian producers, in matters of practical technical questions, but chiefly the agricultural policy.

The Agricultural Minister has now five foreign commissioners, viz., for the United Kingdom and France, in London; for North Germany, Denmark, and Holland, in Berlin; for South Germany and Switzerland, in Munich;

for Roumania, Servia, Bulgaria, and Turkey, in Bucharest; and for Russia, in St. Petersburg.

The Commissioners send in a regular monthly report, and also special reports on special subjects. Those parts of the reports which are of public interest are published partly in the "Földmívelési Értesítő"; partly, according to an agreement made with the National Agricultural Association, in the official paper of this Association: and so they are made public to all the agricultural interest.

The statistical office of the Department collects reports on the condition of the crops and harvests of all important crop-growing countries—principally by aid of the Consular offices—and on this knowledge publishes each year at the end of August a report on the harvest of the world. This report, although it is the first in its kind, has always proved itself useful and reliable. That this is the opinion in foreign countries is proved by the agreement made with the Government of the United States of America for the exchange of the harvest forecasts; and lately the Government of Great Britain has also asked to be supplied with the reports.

To make known the current market prices of corn, the prices of the Budapest Corn Exchange have been communicated for several years in circular telegrams to the telegraph offices of the more important towns and villages, which are ordered to fix the reports on the walls, and the telegraph office is empowered for a yearly subscription of 40 crowns to send it daily to every subscriber in the locality. The number of these telegraph stations was increased in 1898 from 82 to 157, and in 1899 to 383, by the Minister of Commerce.

Under the 8th Act of 1895 a special Agricultural Statistical Report was drawn up dealing with not only

the acreage, implements, and live stock, but also with the general economical conditions of the parishes and districts.

For this purpose each farm was supplied with a special inquiry form, the summing up of which filled a pamphlet, and furnished a complete monograph on the farms of special interest. Besides this, details which were of a more general character were summed up in a schedule of questions dealing with parishes and districts. The whole material was worked up by the Central Statistical Office, and the results were published in the years 1897–1900 in five large volumes, 526 folio sheets, containing all the data and the results in a systematic manner. This great work, which satisfied the old and often repeated demand by scientific circles, public opinion, and the House of Parliament, certainly satisfies all urgent wants, because it not only furnishes a reliable basis for any subsequent census, but at the same time is a reliable adviser to anybody working to promote the agricultural interest in Hungary.

The first volume gives, parish by parish, those detailed accounts which are of general interest, and which are serviceable for administration work in proportion to the information supplied. This volume gives, parish by parish, the division of the land of each farm according to cultivation, the extent of the farming by owners, by *usufructurer* or by tenants, the live-stock in age, sex, and breeds, the number of draught carriages, the number and sex of draught animals, the number of fruit trees, as well as accounts regarding assurance, agricultural industries, and artificial manures.

The second volume is the reference-book for farmers, detailing each farm over an extent of 100 holds, its distribution according to the cultivation, the number of permanent farm servants, live-stock, and agricultural

implements, and explains if the farmer is the owner, tenant, or *usufructurer*.

The matter contained in the third volume supplies the basis for good harvest statistics, because the amount of territory is definitely enumerated in it, and therefore it is easier to gauge the yearly quantity of crops. Before this census, much of the land was either unaccounted for or only approximately guessed at.

Certainly not less interesting, and what eventually proved the most valuable part of this work, are the statistics of agricultural affairs which occupy the fourth volume of the report. The farms, according to their different size, are grouped together not only with the extent and cultivation, but with full details of the implements, live-stock, and ownership. These accounts show the work done on the large, medium, and small farms, their proportion to each other, and their respective positions in the economic life of the country, and are interesting not only from the agricultural but also from the social point of view.

In the last volume there are noteworthy accounts of the common forests, grazing lands, and common grazing. They supply very precious facts dealing with the breeding of stock, and especially popular breeding. This volume contains an account of the weights and value of live-stock, shows the milking capacities of the cows on the average and in total, and shows the *quantity* required for seeds by drilling machines and by hand. It gives accounts of the limited selling power of land. In the same volume there is a complete bibliography of Hungarian agricultural literature, and seventeen coloured charts showing the most interesting agricultural diagrams.

It will be seen from this general description that the new statistics for agriculture, not only by the vast quantity

of information supplied, but also by the method of research, are furnished in a manner which thoroughly carries out the intention of Parliament. Parliament, recognising the seriousness of the work to be done, by the 8th Act of 1895 voted an extraordinary credit of 600,000 crowns; and later to gather together and publish the rich agrarian and social material collected, in the Budget of 1899 voted an extra credit of 40,000 crowns to supply Hungarian agricultural statistics. And this sum was supplemented to supply the work with charts, under the final consent of Parliament by the Council of Ministers, with a further sum of 14,000 crowns.

The amount of acreage under different crops was in 1899–1900, with the cooperation of the parish councils, exactly ascertained. This result showed that since 1895 each of the more important crops has increased in acreage, causing a diminution principally of grazing and fallow land, *i.e.*—our agriculture had become more intensive.

To further develop the agricultural statistical service the Minister of Agriculture held a departmental conference in 1900, which proposed :

1. To measure the acreage of different crops every three years in cooperation with the parish councils; any important changes in the meanwhile being taken into account when gauging the yearly crops on the reports of the agricultural correspondents.

2. To supply accounts of the rise and fall on all the foreign corn markets and more important inland markets to the farmers.

3. To keep in evidence, as far as possible, the quantity of those visible supplies which have the largest influence on the relations between demand and supply.

The accomplishment of these objects is of special interest to farmers, and so the Central Statistical Office collects now

in every three years details of the acreage of different crops from the parish councils, and the agricultural correspondents report every year on the larger alterations that have taken place between the triennial periods. The evidence of corn prices and visible supply is left to the future.

VITICULTURE AND VINE-DRESSING.

1. *Viticulture.*

Before the phylloxera, viticulture was generally regarded in Hungary only as an additional culture in farming. The good position and the soil of our hill counties, mostly formed on volcanic stones, furnished fiery and savoury wines, the atmosphere of the valleys secured the flavour, and so the natural power produced the Hungarian wine in its ancient growth, but human industry and intelligence contributed but little to the perfection of the produce.

Six hundred and twenty-two thousand holds produced yearly $4\frac{1}{2}$ –5 millions of hectolitres, thus averaging per hold $7\frac{1}{2}$ –8 hectolitres. This renders intelligible the fact that neither in political nor in private economy was there ever attributed to viticulture the same importance which is attributed to this kind of farming in the first-rate wine-producing countries : in France, Italy, Spain, and Portugal. The providence of the State did not extend to viticulture, and the State devoted absolutely no attention to viticulture either by organical interference or by institutions. Yet the wine produced on the finest vine-producing hills was generally—even by its own inherent qualities—reckoned amongst the best qualities of wines in the world.

The appearance of, and destruction caused by, the

phylloxera in the best vineyards awakened us to full knowledge of the grave importance of viticulture in our economy.

The country generally, and the farming industry in particular, awakened only from their indifference towards the importance of viticulture when the best vineyards of the country—at the Lake Balaton, on the hills of Ménés and Tokaj, by the Ér, Szegszárd, Eger, and Villány—were totally destroyed. In these formerly affluent districts appeared the misery and poverty due to lack of employment; depopulation and emigration increased by leaps and bounds. Then was the conviction felt that viticulture was an important branch of agriculture valuable to the Government and people.

So amongst the Governmental agenda the State guidance of viticulture was introduced; and it is only since this time that we are really able to speak of State interference in viticulture: and the care of viticulture—as far as it relates to the economy of the State—starts with the steps taken against phylloxera.

The extent of the original vineyards in Hungary before the appearance of phylloxera was 622,488 holds in 5,570 parishes.

The presence of the phylloxera was apparent up to the end of 1895 in 2,544 parishes, and between the years 1896 to 1902 in a further 683 parishes; and so at the end of 1902 it seemed that the vineyards of 3,227 parishes (viz., 55 per cent. of the whole vine-producing parishes) were already infected.

These numbers do not faithfully represent the extent of the devastation, because the larger and more important vineyards were those infected by phylloxera, and in these parishes the vineyards were of greater extent than in the non-infected parishes.

The original extent of vineyards before the attacks of phylloxera was 622,488 holds; of this the phylloxera devastated, up to the end of 1902, 444,333 holds, and so there remained uninfected of the original vineyards only 178,155 holds. Of these 178,155 holds, however, about 78,000, or 43·7 per cent., are on sandy soil, that is, on soil inimical to the phylloxera, so there are at present no more than 100,000 holds from the original vineyards which are exposed to the danger of phylloxera.

If we compare with this the territory already devastated (444,333), the result is evident that the phylloxera had already devastated more than 80 per cent. of those vineyards which were exposed to its ravages.

The 444,333 holds are, however, not all in a devastated condition at the present time, as a very respectable part has been already replanted.

The first steps taken were towards the preservation of the lands unattacked by the disease, and to viticulture generally.

It was possible to do this by two different methods, which were both tried: (1) to sustain on clay soils the attacked vineyards by bisulphide of carbon; (2) to transplant, at any rate to a certain extent, the growth of vines to territories of sandy soil, and therefore inimical to the disease, and there propagate viticulture.

Prevention by Bisulphide of Carbon.

It is extremely hard to understand why at the beginning nearly all the farmers were so hostile to the method of applying bisulphide of carbon, as it was evident that by this means it was possible to defend against the devastation many thousands of holds of vineyard, and preserve them against the danger.

It was useless to procure the bisulphide of carbon at a reasonable and reduced price; it was useless to show its definite results on model vineyards; it was useless to reduce taxes, as permitted by the Tax Act of 1891, for those vineyards which were retained by means of bisulphide of carbon: the method did not acquire for ten years any popularity, and was not applied to any great extent.

The consumption of bisulphide of carbon did not reach in any of the years from 1886 to 1895 altogether 400 tons. In this period the consumption was largest in 1891 (387·7 tons); in the other years it oscillated between 250 and 300 tons, the tendency in some years increasing, but in others decreasing, without any apparent reason. The bisulphide of carbon was distributed in 1895 by seventeen dépôts to the farmers.

The Minister of Agriculture directed his attention to popularise this method of defence in three different ways:

1. He increased the number of dépôts of bisulphide of carbon, so as to make them more easy of access;
2. He increased the number of model defence works by bisulphide of carbon, to show the method and the results in wider circles;
3. He increased the production of the bisulphide of carbon, by improving and enlarging the only factory for its manufacture at Zalatna.

In 1895 there were in the country seventeen dépôts for bisulphide of carbon, and in 1903 already sixty-five, an increase of nearly fourfold.

The model territories—viz., vineyards duly chosen for this purpose—were increased in such a manner, too, that the Minister gave, quite free of cost in some places, to church or communal vineyards the required quantity of bisulphide of carbon.

Following these steps, the method is still increasing in late years, and the consumption of the bisulphide of carbon increases also, *i.e.* :—

In the year 1895 . . .	291·6 tons.	In the year 1899 . . .	1,337·9 tons.
„ „ 1896 . . .	481·9 „	„ „ 1900 . . .	1,801·7 „
„ „ 1897 . . .	615·7 „	„ „ 1901 . . .	2,676·0 „
„ „ 1898 . . .	1,063·9 „	„ „ 1902 . . .	3,488·8 „

In 1903, up to the end of September the depôts were provided with 3434·3 tons.

To increase the production of the bisulphide of carbon, the Minister of Finance, acting in perfect harmony with the Minister of Agriculture, made several extensions to the factory works at Zalatna.

The producing power of this factory was in the year 1895 only 800 tons, but now it is 2,800 tons yearly.

In the year 1901 an arrangement was made by the dynamite works at Pozsony to produce the bisulphide of carbon also, so there are now two factories in the country producing this material.

By the delivery of every two cwt. of bisulphide of carbon the amount of State aid given to the farmer is nearly 8 crowns, because the Department buys the bisulphide of carbon at a higher price (formerly 36, later 34 and 32, now 30 crowns), and delivers it to the consumer at a fixed price of 30 crowns. Thus it appears at present that the buying and selling prices are the same, but formerly the difference, as well as the cost of carriage of the material and empties, was defrayed by the State. The iron cases containing the bisulphide of carbon are lent without any charge to the farmers. In addition, to aid the carriage of the bisulphide for the use of the farmers, the State railways charged for all or any quantities at large wholesale rates, which represent a difference of nearly 40 per cent. In the year 1898 these rates

were again reduced by 50 per cent. in the case of bisulphide of carbon, and 10 per cent. on empty returned casks.

This method has still a great future before it on such territories where the culture of American stocks—chiefly because of the greater quantity of chalk in the soil—is unwise, and by it not only the older vineyards are kept up in these soils, but works were begun to settle European stocks kept up, and to be kept up, on territories devastated by the phylloxera with the aid of bisulphide of carbon. The results up to the present are not only fairly satisfactory, but at the same time very encouraging for the future. The increasing demand for bisulphide of carbon during the last three years is in no small measure due to this new method.

VINEYARDS ON SAND.

In the crisis, caused by the phylloxera on our hills of clay soil, another method to preserve viticulture was the transference of its culture, at least partly, to immense sandy tracts of land. This policy of utilising the sandy soil, so little considered before, was most important and effective in its results, because some species of our grapes were already in danger of being destroyed, and perhaps would have ceased to exist, if it had not been possible to transplant the stocks of these kinds to sandy soils, where, free from the danger of phylloxera, it was possible to breed them. In this manner some famous portions of our viticulture were saved.

This was the chief importance of the vineyards on sand, and this was principally the aim of a sandy vineyard of 200 holds in area, which was started by the State fifteen

years ago at Kecskemét. Later, when the reconstruction of the mountain vineyards had already begun, and the survival of our most famous vines was also secured by grafting on American stocks, yet, on the other hand, the sudden destruction of the original vineyards and the slow process of their reconstruction, made the vine harvest very much inferior. The viticultural interest looked on the vineyards on the sandy soil as secondary, yet it was successful, and increasingly so, and at the present time is reserved as a separate culture, and in some parts of the country as a farming of a first-rate importance.

Those freshly started sandy vineyards, which were built on the sandy soil in Deliblat, Örszentmiklós (County Pest - Pilis - Solt - Kiskun) Pazony (County Szabolcs), Kökuttapazd and Balaton Keresztur, called Maria vineyards (County Somogy), Császár (County Komárom), Ondód and Bokod (counties Fejér and Komárom) by State aid or State initiative ten years ago, altogether to an extent of 7,329 holds, have developed in the last six years (1896-1902), in a satisfactory manner, and are now in full working order. The cultivation is mostly carried out by small proprietors, who can easily cultivate $\frac{1}{2}$ -2 holds of vineyard, and with good results. The crops are not only, as a rule, a very great item in their living, but there often remains some small profit.

In view of the satisfactory results of the sandy vineyards, and the necessity of laying out the principal part of the vineyard at Kecskemét for the preservation and breeding the stock of the old species, the Minister of Agriculture transferred his attention to this second action, *i.e.*, the study of the sandy vineyards, and principally the dressing of vine grown on sandy soil, and developing technical knowledge. He therefore started on this vineyard in 1900 a school for viticulture.

The same purpose, *namely*, the diffusion of technical knowledge, is served by the publication of a popularly-written manual on "Viticulture on Sandy Soil," which is now in its second edition, and which is distributed, as generally are all the publications of the Minister of Agriculture, free to clergymen, schoolmasters, farmers' clubs, and agricultural societies, etc.

The extent of the new vineyards, started since the appearance of phylloxera, on sandy soil is :

(a) those started between the years 1880-1895 (15 years)	34,033 holds
(b) those started between the years 1896-1902 (7 years)	56,632 „
during the years 1880-1902 altogether .	90,665 „

which shows that the work of the last 7 years surpasses that of the preceding 15 years.

The future of vine-growing in sand depends on the amount of manuring supplied to the soil. If the cultivator does not supply carefully and in a satisfactory manner the land with manure, it will very probably happen that the soil will become unproductive through lack of nourishment, and the crop a failure.

RECONSTRUCTION OF VINEYARDS.

From the first appearance of the phylloxera in the vineyards of the country in the eighties, until 1895, there were made only attempts of minor importance and small results, and works of primitive extent to regenerate the declining viticulture, and this applied to both the State and individuals.

The turning point in the crisis of viticulture is marked by the 5th Act of 1896, the aim of which was the reconstruction of the devastated vineyards, because this Act not only recognised and proclaimed, as part of the agricultural programme authorised by Parliament, the technical and economical possibility of the reconstruction of vineyards, which was very much doubted before, but at the same time supplied the means to carry it out. It enabled the Government to produce by definite plans the necessary requisites for the reconstruction of the devastated vineyards and to place them at the service of the farmers; to the farmers it gave the possibility which their own means prohibited, of large outlays in the reconstruction to be repaid in instalments extending over many years.

These two aims are served by the clauses of the 5th Act of 1896. The policy of this Act mainly distinguishes two kinds of action, the first group being those which were, by the intention of the Legislature, served by direct State interference.

In this direction the Legislature prescribes to the Minister of Agriculture :

1. To take steps to grow and supply at a low cost the stocks and grafts necessary for reconstruction.

2. To organise popular and systematic lectures for diffusing the knowledge of the new methods of viticulture.

3. To organise in the neighbourhood of the capital an experimental station for viticulture, and organise and supply one or more field experiments.

4. To promote in the districts of the reconstructed vineyards the formation and establishment of cooperative cellars.

To aid the breeding of stocks and grafts in large quan-

tities, the Minister of Agriculture tried in the first place to encourage some social factors and private individuals by State aid and by some definite grant system.

But this process proved unsuccessful, because although some private stock and graft depôts were started, yet most of them ceased their work in three years. The reason of this is, that the production of graftlings is only profitable if the producer can dispose of the products at a relatively high price, which the farmer in his reconstruction work was either unable or unwilling to pay.

So, the vital condition of these private depôts, *viz.*, the high price marketing of the graftlings, being incompatible with the second aim, prescribed by the Act, namely, that the viticulturists could buy at a reasonable price the graftlings, it was only natural that in this clash of interests, the smaller one—namely, the interest of the graft-producer—was forced to give way, and the larger one, the interest of the farmers, predominated.

This situation led in the course of natural development to the system of State production, because it was only the State which was able, and, under our circumstances, willing, to supply viticulturists with the American stocks and grafts necessary for reconstruction, at cost price and eventually at some loss, and to supply only absolutely good and reliable material—all idea of profit, so necessary to private contractors, being absent. Consequently the State took over the land formerly cultivated by private endeavour, and the following facts show how much work it has done in this direction since the passing of the 5th Act of 1896.

There were in 1895 ten depôts for producing American stocks and grafts of an area of altogether 228 holds; there are now depôts at every notable vine-producing district of the country, numbering forty-six, with an area of altogether 1,760 holds.

Seven millions of American stocks were produced on the State depôts in 1895. The productive power of the existing depôts, when in full producing power, is 40—50 millions.

Half a million grafts were produced on the State depôts in 1895, and at the present time twelve millions.

In this last respect, however, this is not the final limit of the producing power, but the production can be increased, can be doubled, or trebled, and by applying the newest methods founded on the most modern experiments and researches, raised to a much higher percentage of success in the grafts; and so the cost of production could be decreased, and simultaneously the selling price could be lowered.

The number and distribution of the State depôts serving in the production of American stocks and grafts, as well as the extent of each depôt, is to be seen in the table on the following pages.

The State depôts supply the farmers with the grafts and stocks grown, at an average price corresponding to the actual cost. Church funds, clergymen, schoolmasters, parishes, and small proprietors, according to their means, receive a rebate of 20—90 per cent.

In this manner (at reduced price) there were distributed

	Stocks.	Grafts.
1896-7	1,163,000 . .	150,000
1897-8	2,122,000 . .	210,000
1898-9	2,482,000 . .	290,000
1899-00	2,548,000 . .	331,000
1900-01	3,025,000 . .	516,000
1901-02	16,306,000 . .	1,576,000
1902-03	16,416,700 . .	777,800

and so in the last seven years altogether 44,062,700 stocks and 3,850,800 grafts.

The value of the rebate given by this distribution is nearly 1,200,000 crowns.

STATE DEPOTS FOR AMERICAN GRAFTS.

Distribution.		Parish.	Extent.			
County.	Stock depots.		Graftlings.		Total.	
	hold.		□-öl.	hold.		□-öl.
A.—OLD DEPOTS.						
1	Kis-Küküllő.	Adámos.	20	—	30	—
2	Tolna.	Zsáka.	4	—	8	—
3	"	Gyönk.	—	—	20	—
4	Alsó-Fehér.	Nagyenyed.	3	—	3	—
5	Kolozs.	Nagysármás.	6	—	6	—
6	Pozsony.	Pozsony.	20	—	24	—
7	Zala.	Tapolca.	34	—	40	—
8	Zemplén.	Tarcal.	68	800	68	800
9	Torda-Aranyos.	Torda.	34	—	34	—
10	Zemplén.	Sárospatak.	—	—	30	—
			209	800	263	800
B.—DEPOTS STARTED IN 1897-1898.						
1	Baranya.	Pécsvárad.	14	—	26	—
2	Bihar.	Jankafalva.	10	—	19	—
3	"	Margitta.	11	—	18	846
4	"	Orvánd.	8	—	14	260
5	Borsod.	Mezőkövesd.	10	—	20	—
6	Gömör és Kishont.	Putnok.	11	—	14	—
7	Heves.	Eger.	26	400	25	—
8	Nógrád.	Romhány.	14	1,204	4	854
9	"	Szék.	8	698	5	1,960
10	Nyitra.	Nyitra.	7	—	8	167
11	Pest-Filis-Solt-Kiskun.	Szentendre.	12	—	8	57
12	Pozsony.	Modor.	14	—	6	20

From the stock held at these dépôts in the first instance—following the intentions and dispositions of the 5th Act of 1896—was satisfied the want of the farmer in the first rate vine-producing districts. The planting of vineyards on territories of a clay soil on the plain is reckoned from general practical reasons disadvantageous, because such land can be used for other purposes, and the vine produced on them being of an inferior quality, lowers the prices of wine, and makes more difficult the re-establishment of the renown of the Hungarian vine, which has lately suffered, and, besides, gives no satisfaction to the consumer. The right policy now, when the reconstructed and quite new vineyards begin to yield—and in a short time their yield will be very important—cannot be otherwise than to direct the production towards equalising the quality. Special attention must be paid to the fact that in the vine-producing countries, and chiefly in the more ordinary sorts of vine, there is already a very great over-production.

For this reason it is evidently necessary to strictly and carefully carry out the decision contained in schedule 5 of the 5th Act of 1896, which declares that “in the privileges accruing from this Act to viticulture, only those territories can participate which, situated on the former vineyards, are already devastated or in course of devastation by phylloxera, and these privileges are given and can be urged only and exclusively for the sake of the reconstruction of vineyards on such territories.” Consequently, the State dépôts distribute the American stocks and grafts only to those proprietors whose vineyards are in the vine-growing districts under the 5th Act of 1896.

To fulfil the intention of the Act, mentioned in point 2, above, the Minister of Agriculture intended to disseminate technical knowledge in five different methods:

(a) Organising popular lectures for viticultural labourers who were sufficiently numerous.

These lectures are given either in winter time—the holidays of agricultural labourers—when the district vineyard inspector comes in the parish and discusses and demonstrates in 7—8 days' lectures to the assembled viticultural labourers, chiefly those viticultural questions and methods which are eminently important just to the respective vine districts; or these lectures are held during the producing period in the season of each more important viticultural work, and thus the district vineyard inspector is able to discuss and demonstrate in the vineyard how the respective work is to be done, and can show practical illustrations to the interested viticultural labourers.

Although it is undeniable that these courses have their salutary effects, because they propagate and popularise generally viticultural knowledge, still it is quite unreasonable to expect more from them than the awakening and maintaining of the interest. This demand they do really satisfy; whereas in the years 1890—1895 on an average from 15,000 to 18,000 viticultural labourers took part in these courses, in the years 1896—1902 the increase was considerable; the participants being in 1899 at 753 courses, 29,500; in 1900 at 678 courses, 79,000; in 1901 at 1,757 courses, 52,720; in 1902 at 1,712 courses, 52,893.

These periodical courses are supplemented:—

(b) By those courses of 9—10 months, which are organised on State vineyards to educate viticultural labourers in such a practical and systematic manner that they may be able to work smaller vineyards, and eventually manage them without any further instruction.

These courses are organised according as the State vineyards are successively provided with buildings, and all implements necessary to the courses, and so partly are

already in working, partly under organisation, and start in sequence.

To these courses are admitted on the State vineyards as many permanent labourers as are required for the cultivation. At the end of the course they leave the vineyards as practically trained viticultural labourers, and spread the knowledge necessary for modern viticulture.

(c) Considering the fact that the work of the elementary teachers is exceedingly important, every year special courses of four weeks are organised for elementary teachers at the viticultural schools and State vineyards.

To these courses are yearly admitted—but each year from different districts—100—150 elementary teachers, who receive each 120 crowns for their board, lodging, and travelling expenses for the four weeks. By these courses, the teachers, who, as a rule, have already a good elementary knowledge, are able in four weeks to acquire such knowledge relating to viticulture and vine dressing, that they become real apostles of viticulture in all parts of the country, and propagate fervently the knowledge which they have acquired.

(d) By editing two manuals, *Introduction to Viticulture*, and *Viticulture on Sand*, the department has also propagated practical viticulture. This “Introduction,” which treats the whole system of the modern viticulture in detail, but practically and in a fairly intelligible, popular manner, and which has at present a circulation of 70,000 copies amongst viticulturists, is supplied free to any agricultural society, club, viticultural society, or viticultural co-operative society, as well as any clergyman, school-master, or schools, on application.

(e) To the systematic treatment of the special knowledge regarding viticulture for educational purposes are added the special schools for this technical knowledge—

the viticultural colleges and the higher courses for viticulture and vine dressing.

The Minister of Agriculture co-operated in the development of these institutes to propagate the technical knowledge in viticulture, both at home and abroad.

In the year 1895 there were 5 State viticultural schools and 118 pupils; to-day there are 8 State viticultural schools and 277 pupils.

In the last seven years the new viticultural schools at Eger, Kecskemet, and Pozsony have been started.

The number of the pupils at the higher course for viticulture and vine-dressing—by the very aim and nature of this institution—cannot be more than 18—20; consequently here the institution could be developed only in an intensive manner.

To fulfil the three points of the programme, the Central Viticultural Experimental Station and Ampelological Institute were organised. The full development of this institute, which is so important for the future of viticulture, will require more time; we must indeed begin by educating the experts up to the full pitch of their work.

The aims of this institute are fourfold: the parts relating to biology and pathology of plants, to the chemistry, to the fermentation, and to the practical viticulture. The object is to carry out extensive researches regarding the life, diseases of the plants, the fermentation of the must, and the development of the vine, to convey light to those numerous corners of practical viticulture which are still in darkness, and give facilities to the Minister of Agriculture in directing the economically technical progress of viticulture, for making the cultivation cheaper, surer, and more valuable, the produce better and more perfect.

The first duty to start this Institute on a sound basis, was to build and equip the necessary laboratories.

For this purpose the Minister of Agriculture in the Metropole acquired a territory of about 7 holds in extent for 119,259 crowns, and the building on it of the four laboratories was completed in 1902.

The work of the institute was carried on in the meantime, as far as circumstances would allow, in hired buildings, and showed some remarkable activity. It has examined in the last two years many hundreds of cases of diseases of plants, and has made studies of some which have never been studied before. It has made a special organic, biological study of the green grafting of grapes, and is studying now stock grafting, and such biological courses, which have never been examined in such an extensive manner before.

The results of these researches in the green grafting of plants have been already published in the first volume on the experimental work of this station, and were warmly welcomed abroad, especially in vine-growing countries, such as France.

In the same manner, in a report of the experimental ampelological station, published in 1902, there appeared a voluminous and carefully written essay from Professor Dr. Julius Istvanffy, on the brown rot disease of grapes, which, owing to the weather being favourable to its growth, has made in late years considerable havoc in our vineyards. It is generally hoped that the experiments for its prevention now under trial and based on the experiments in this station, will have a favourable result.

The central ampelological station's works besides these were :—

1. Its laboratories dealing with the pathology of plants. These are used chiefly to examine the disease in the samples

sent in by the farmers, and to educate the viticultural public concerning these diseases and to give, where necessary, practical advice for their prevention.

The different diseases of grapes : the brown rot, *Botrytis*, causing the grey rot, the root diseases and monilia, phylloxera, and other diseases of the absorbing organs (roots), as well as the ripening of stocks, breeding of plants, the crossing and the course of development both of the stock and leaf grafting, were studied by the pathological laboratories, which carried out for this purpose 545 special experiments. The results were partly published in an essay on brown rot diseases, partly used as bases for further researches, inquiries, and studies.

2. The laboratories dealing with the chemistry of the vine, which besides analyses of vine samples, made in the year 1902 altogether 368 chemical analyses, in order to regulate the spraying and other means used for the prevention of phylloxera, perenospora, and odium.

It studies the course of ripening of the stocks parallel with the pathological laboratories.

It gauges the real value of methods recommended for defence against phylloxera ; and studies the result of some means to combat the spring frosts (industrial offals, oil, naphtha, turf, saw-powder, burning, &c.).

3. The laboratories for fermentation made 387 investigations for the production of the materials necessary for pure fermentation, for the production of kindred matter, to examine the different starching methods from different districts, to study the organisms producing the various diseases of wine and grapes, and started in 1902 analyses of the atmosphere. Such analyses of the atmosphere were never tried before in vineyards. The object is to prove the presence of some germs of disease in the

atmosphere before contamination, so as to make it possible to secure the corresponding safeguards.

Such analyses of the atmosphere were made on altogether 58 materials collected from the most widely-spread (38 places) districts of the country.

For a museum to be opened in this station, the collection of the diseases, unnatural alteration and some other cases interesting to viticulture, was supplemented by 23 very interesting new cases.

The central ampelological experimental station, besides these duties, gives detailed opinion and practical advice to all interested in viticulture, vine-dressing, and in the most difficult cases relating to the choice of the method of reconstruction on heavier lands (eventually at the required place).

The choice of the method of reconstruction, and in the first place the right application of American stock, according to the quality of the soil, was promoted by the examinations of soil, which were carried out in certain vine-growing districts, especially at the Lake Balaton, in some vineyards of the metropole, in 16 parishes of the county of Sopron, at Pozsony, near Tokaj, and in the counties of Tolna and Baranya. We cannot expect from those analyses to give exact advices for every vineyard and to every farmer, and to tell which method of the defence, and—if the method selected is the reconstruction—which kind of the American stock will be the most advantageous. The great importance and practical reliability of these analyses is, that they find out the quality of soil in each district, and so advise the best and most rational form of reconstruction suitable for each case. On this basis the respective district inspectors who gain general knowledge from their assistance in the analysis work, are competent to give in any complex case

the necessary advice to the farmer with almost absolute certainty of success.

The duty mentioned in the point 4, of organising cellar-storage societies on co-operative bases, shows a much slower proportion of progress. The reason of this is that to start these societies is the duty of the individuals. The government can only suggest and foster the vital power, and success rests with the farmer.

Good vine-dressing and the question of the marketing of vine in our circumstances require great care and foresight, because the future of the viticulture of the country depends upon the good and successful solution of this problem. The Hungarian vine is first-rate produce, and defies the competition of any other country's growth. But to acquire that degree of perfection, which can only be obtained by careful expert vine-dressing, it is absolutely necessary to organise in the country reliable and trustworthy vinting. It is a fact to be regretted, that in most vine districts this is relatively unknown to our farmers.

The production and capital of the grower is insufficient for him to use individually best vine-dressing methods, and so the valuable produce, which Hungary has in her vines, cannot realise its full value. Therefore we cannot proceed otherwise than by the combination of the producers, and consequently we must try to educate the vine-producers to combine by starting co-operative societies.

To foster this idea the Minister of Agriculture has published a pamphlet in a popular form, which teaches vine-growers the advantages of co-operative methods. The necessary steps were taken to make it possible for the co-operative cellars to be administered by the Central Co-operative Credit Society, so that it should be possible

for the vine-grower to have an advance on those vines which are deposited in the co-operative cellars before selling them. Lectures were held on the utility of co-operative cellars, and the inspectors for viticulture and vine-dressing carry out propaganda of this idea. Lastly a pamphlet was published on the rational handling of the must and vine. Notwithstanding all this, up to the present time there are but few co-operative cellars in working, yet the interest is awakened towards the idea of combination.

So a hopeful view can be taken that the dressing and marketing of the Hungarian vine will be raised to a point worthy of the produce.

The Sched. 2, of the 5th Act of 1896, gave power to the Minister of Agriculture to sign, with the consent of the Minister of Finance, an agreement with one or more banks, having a capital of at least eight millions of florins under the conditions specified in the Act, for advances for the reconstruction of the vineyards devastated by the phylloxera, up to a sum of twenty-five millions of florins.

Neither the devastated vineyard in itself nor the personal credit of the farmer being sufficient, at least in most of the cases, security for these advances—and consequently it would have been impossible to find a bank to make advances for the reconstruction of vineyards on its own risk—it was absolutely necessary to seek methods and means to supplement the inadequate security and give the bank reasonable guarantee.

For this reason it was decided to form a special reserve for the further guarantee of these advances, which is to be made by deducting and placing in the reserve a whole year's interest and annuity of the advanced loan, and the State is pledged to keep this reserve fund always, if eventually it should be from any cause shortened, on the level of a

whole year's interest and annuity of all the loans outstanding.

In this connection the Act guaranteed the debentures issued by the bank on the lines of the vineyard reconstruction loans, and voted a full exemption for the debenture shareholders and their coupons from the stamps, duties, and taxes, and voted full exemption from all stamps and duties on all deeds and acts relating to these reconstruction loans.

These advantages, and principally the guarantee of the reserve, and the guarantee of all the loans by the State, made it possible to organise these reconstruction loans and to find a bank ready and able to undertake the work.

The bank which undertook on this basis the reconstruction loans was the Hungarian Agrar and Rente Bank which, since the Act has been in force, makes the necessary advances. At the end of 1902 the amount of these advances was 27,785,000 crowns, voted to 7,788 farmers to reconstruct vineyards of 15,085 holds.

The extent of the territory reconstructed by the aid of these loans is in reality not large, but still they have had a very great importance and influence on the whole viticulture of the country, because this method exercises indirectly a very powerful influence on the reconstruction of the vineyards all over the country.

The first effect is shown by the fact that the price of the devastated vineyards in the better vine districts has risen to 5, 6 fold of the prices offered for the same territories before the passing of the 5th Act of 1896, and the advances for reconstruction. Whereas before 1896 a hold of the devastated vineyards of the districts of Mènes, Tokaj, of the Lake of Balaton, or Beregszasz, was offered for 160—200 crowns, and seldom had a buyer, now, since

the passing of the 5th Act of 1896, it regularly fetches 800—1000 crowns. There are cases in which devastated vineyards have been sold at auction for 1200—1700 crowns. In most of the vine districts it is absolutely impossible to buy devastated vineyards, because the proprietors will not sell them at any price. In the second-rate district vineyards the same tendency is to be observed, the price of the devastated vineyards has risen, if not in the same proportion.

The second effect is shown in the districts where vineyards are reconstructed by means of the loans, in the eager reconstructing by proprietors who do not need help from the banks. They see the splendid results from the aided vineyards, under permanent inspection and control, and so, in increasing numbers—and they are very numerous—restock their own vineyards.

But the more important and partly direct effect of the 5th Act of 1896 is this, that from the advances,

10·3 per cent. goes to the reconstruction of vineyards of a small extent, not exceeding 800, □ -öl, or half a hold (really the smallest cultivation);

77·7 per cent. goes to those whose vineyards have an extent of between half and four holds, and only

19 per cent. goes to the larger, so that 85 per cent. of all the loans are given to the small proprietors, which signifies that by their advances so many families were saved from bankruptcy or resignation, so many existences were consolidated, as corresponds to advances, making up this 85 per cent. of all the loans given.

This is certainly a respectable result, and more so, if we recollect that these reconstruction advances were used on the hills, on territories which are scarcely fit for any other cultivation, or certainly not so profitably. The advances given up to the present time have resulted in

a considerable increase of the national wealth and national labour.

The result of the cooperation of all these institutions is a more general and wider development of the reconstruction of vineyards, the starting of new vineyards, especially on those immense sandy soils which are hardly fit for any other agricultural culture, and in consequence starting of new labour and wages for the working men.

It is a sum of several millions, which through the distribution of work, the reconstruction of vineyards has directed to the people.

Of the present state of viticulture the following facts give a right idea :

The whole extent of vineyards before	
the phylloxera was	622,488 holds
From these the phylloxera has devastated up to the end of 1902	444,333 „
Consequently, from the original vineyards there remained only	278,155 „

From the *original* vineyards devastated by the phylloxera were reconstructed :

(a), in the years 1880–1895 (15 years) .	23,818 holds
(b), in the years 1896–1902 (7 years) .	135,641 „
	<hr/>
Altogether	159,459 „

The last number shows clearly the beneficial effect of the 5th Act of 1896 ; under the working of this Act in the last seven years nearly six times the amount of territory has been restocked more than in the previous 15 years.

There were started new vineyards on sandy soils :

(a) in the years 1880–1895 (15 years) .	34,033 holds
(b) in the years 1896–1902 (7 years) .	56,632 „
	<hr/>
Altogether	90,665 „

Combining all these facts, the results are these :

To the original, and up to the present existing vineyards of	178,155 holds
There are to be added the extent of the reconstructed and new vineyards	
From the years 1880–1895	57,851 „
From the years 1896–1902	192,271 „
	<hr/>
The extent of the vineyards is now	428,277 „
Which amount is less than the original amount before the phylloxera of . .	622,488 „
	<hr/>
less by	194,211 „

Of the vineyards devastated by the phylloxera there are already totally reconstructed the vine district of Beregszász, nine tenths are reconstructed of the vineyards at Ménes, nearly in the same proportion the Ermellek, three-fifths the Tokaj and Balaton Lake District, and a great deal is done at Szegszárd and Pécs.

As for the quality of the wine produced at the reconstructed vineyards it is to be remarked that young stock cannot give such characteristic wines as the fully matured stock. So the wine produced in the reconstructed vineyards is not so perfect as was the wine from the old stocks. But we have on these vines all the qualities which are certain when the stocks are older, in some 3—7 years, to

develop and contain the special characteristics of the old Hungarian wine.

To promote the vine-reconstruction the Hungarian State Railways, as well as those local railways which had interest in this matter, lowered the rates for the transport of vine sticks to the rates of the transport of fuel. This means a reduction of 20 per cent. on the old rates.

At the time, however, when the reconstruction of the mountain vineyards was begun on a larger scale, the primary costs being very heavy, the complaint was general that the acquisition of vine sticks was too difficult and expensive. Since that time the State forests produce vine sticks also and sell them at a reasonable price to the vineyard proprietors.

The State forests produced vine sticks in number as follows:

In 1897	476,000	In 1900	1,553,000
„ 1898	1,314,000	„ 1901	3,020,000
„ 1899	1,832,000	„ 1902	4,121,320

As for the marketing, the selling prices are now:—
Prices for 1,000 sticks in crowns and fillers.

The quality of vine-sticks.	Length in metres.					
	1·6	1·8	1·9	2·0	2·25	2·50
<i>Full prices.</i>						
1. Round pine vine-sticks	35	38	—	42	49	56
2. Sawn from thin pine	—	—	40	42	48	56
3. Split oak vine-sticks	56	63	—	73	89·50	111
4. Mixed quality split oak vine-stick	48	51	—	56	68	81
<i>Rebate prices.</i>						
1. Round pine vine-sticks	—	37	—	39	46	52
2. Sawn from thin pine	—	—	34	36	41	49
3. Split oak vine-sticks	43	49	—	54	64	75
4. Mixed quality split oak vine-stick	36	39	—	44	53	64

The better vine-districts being generally far from the forest-districts, the Minister of Commerce made for the transport of the vine stick in 1879 a special tariff. By this special tariff, which is otherwise supplied only to the wholesale transport of lowest classes, the railway rates of the vine sticks were lowered again; for example, for a distance of 100 kilometres by a wagon by 4, of 200 kilometres by 8, of 300 kilometres by 10 crowns less.

II. VINE-DRESSING.

Our produce of wine, which had before the phylloxera a yearly average of four to five million hectolitres, in consequence of the devastation of the phylloxera, was greatly reduced since 1891, the ravages of phylloxera having being supplemented by the attacks of the *perenospora viticola* since the beginning of the nineties.

According to the central statistical office the vine produce of the last twelve years has been in hectolitres—

In 1890 . . .	3,443,727	In 1897 . . .	1,130,823
„ 1891 . . .	1,230,626	„ 1898 . . .	1,137,678
„ 1892 . . .	796,560	„ 1899 . . .	1,725,623
„ 1893 . . .	939,987	„ 1900 . . .	1,642,643
„ 1894 . . .	1,387,009	„ 1901 . . .	2,615,346
„ 1895 . . .	1,928,984	„ 1902 . . .	2,624,061
„ 1896 . . .	1,445,741		

The small decrease in 1900 is to be attributed to the spring frosts and gales, which despoiled most of the vineyards. The reconstruction of the devastated vineyards progressing in ever increasing proportion, and the development of vineyards on sandy soils also increasing yearly, we can rely on a much greater amount of vine produce in the following years.

The numbers given represent not the result of the grape-harvests, but the quantity of wine actually produced.

Our small production being unable to supply the home demand, our balance in wine, which formerly showed always a considerable balance on the export side, became dormant in 1892. This promoted to a great extent the import of the Italian wines, under an exceptionally low custom duty. The quantity of the wine exported and imported in casks from and to the Hungarian territory is as follows:—

	Exported. Metercentners.	Imported. Metercentners.	From the imports there came from Italy. Metercentners.
1891 . .	1,042,646 . .	398,123 . .	11,334
1892 . .	722,641 . .	725,048 . .	283,073
1893 . .	719,930 . .	1,221,613 . .	642,726
1894 . .	691,889 . .	1,124,811 . .	504,194
1895 . .	779,910 . .	770,776 . .	226,453
1896 . .	783,847 . .	1,029,390 . .	525,479
1897 . .	774,600 . .	1,286,410 . .	929,740
1898 . .	690,051 . .	1,265,763 . .	917,459
1899 . .	609,806 . .	1,232,180 . .	887,092
1900 . .	730,436 . .	908,537 . .	483,845
1901 . .	689,247 . .	721,908 . .	359,074
1902 . . .	708,960 . .	621,656 . .	317,232

The last item represents only those quantities of wine which were sent direct from Italy to Hungary; but, besides these, there is a great quantity of Italian wine sent through Austria and credited to Austria, but the quantity cannot be fixed.

The import of the Italian wine, as well as the import of wine generally, reached its highest point in 1897; since which year the wine import has gradually declined to half of its former quantity. And, comparing the export and the import, it is seen that in 1902 the balance of our foreign wine trade, which was passive during nine years, became again active, the quantity of exported wine surpassing the import by 87,304 metercentners.

As regards the working of the 23rd Act of 1893, which prohibited the adulteration of wine and selling of adulterated wine, the result of the inquiries made by the permanent expert commission organised under this Act at Budapest and Kolozsvár supplies useful figures. The result was up to the end of 1896:—

	Analysed.		Found guilty, either for production or for false labelling.	
	No. of parties.	No. of samples.	No. of parties.	No. of samples.
1894 .	45	110	19	39
1895 .	46	137	29	67
1896 .	57	187	42	95

As the working of this Act did not prove satisfactory a Departmental Committee was held with the co-operation of the interested public bodies, as well as of the representatives both of growers and wine merchants.

This Committee recommended the revision of the 23rd Act of 1893 on the prohibition of the adulteration of wine and marketing of adulterated wine. An amendment of the Act, however, requiring much time, and the large majority of the members of the Committee being satisfied that much could be done by simply strengthening the regulations of the Act against the abuses in adulterated wines, the government has adopted this latter course, and the Minister of Commerce issued a new order on 23rd of August, 1897, No. 53,850. This order, based on experience, prescribes some modification of the former orders, and prescribes their rigid execution.

To promote the effectual working of the 23rd Act of 1893 the new order stipulated that there should be organised in each district, each town, each arrondissement of Budapest a commission to control the wine, whose aim is to control permanently the conditions of wine-producing and wine-marketing to fulfil the 23rd Act of 1893, and

help the local authorities to control and punish all transgressors of it.

The result of the new order was really more satisfactory, as is seen from the following data relating to the work of these permanent commissions to control the wine.

	Analysed.		Found guilty, either for production or for false labelling.	
	No. of parties.	No. of samples.	No. of parties.	No. of samples.
1897.	71	315	44	144
1898.	305	957	164	404
1899.	910	2,604	370	642
1900.	236	681	81	129
1901.	212	626	103	253
1902.	149	390	78	167

III. ORGANISATION OF SYSTEMATIC TECHNICAL EDUCATION FOR VITICULTURE AND VINE-DRESSING.

The present organisation of the systematic technical education for viticulture and wine-dressing was established in 1892, in such a manner that the whole education is divided into three parts, viz., (*a*) the lower, exclusively practical education for common vineyards, viticultural labourers, and their foremen; (*b*) the middle, principally practical, but partially theoretical, the scope of which is to satisfy the demand for stewards of vineyards of a middle size; (*c*) the upper, on academical level, scientific education in close relation with practical education, the scope of which is to educate experts able to lead the work and develop the cultivation.

A. *Lower Schools.*

There were in 1895 five State and three State-aided private lower courses. The State schools: at Bihar-Diósze, Nagy Enyed, Ménes, Tarczal, and Tapolcza; the

State-aided private schools: at Pozsony, Munkács, and Pécs.

Both the reconstruction of the devastated vineyards and the starting of new vineyards on sandy soils being on the increase all over the country, it was absolutely necessary to have in a corresponding manner able vineyards and labourers educated for the disposition of the farmers, and have them of a superior quality, equal to the new requirements. Therefore, new lower State schools were started, in 1897, at Eger, in 1899 at Kecskemét. In 1901 the State took over the viticultural and horticultural school at Pozsony, which was sustained before this date by the city of Pozsony, and the viticultural association at Pozsony with some State-aid.

The course for the now existing eight lower State schools is a whole year at Ménes, Tapolcza, Tarczal, and Kecskemét, the education mostly practical, and the scope is to educate common vineyards, intelligent viticultural labourers, and foremen; at the schools of Bihar-Diöszeg, Eger, Pozsony, and Nagy Enyed, however, the course is for two years in the last three years, and although the principal portion is practical, the education is partly also theoretical, the aim being in these schools to educate men who should be able to handle independently middle-sized vineyards.

There are no school fees in the State lower schools. Lodging is given to all the pupils free. The pupils are partly at their own expense, paying for the board (board, washing, nursing, fuel, and light) yearly, according to the local circumstances, 240—300 crowns; but most of them are either free or at half cost, as the State lower schools are provided partly from the State, partly from private charity. There are scholarships to cover the half or the whole of the board expenses.

The attendance is shown by the following table. The number of pupils was altogether in the scholar years—

1890-91 . .	89	1897-98 . . .	213
1891-92	103	1898-99 . .	215
1892-93	122	1899-1900	226
1893-94 .	121	1900-01	270
1894-95 .	153	1901-02 . . .	256
1895-96 . .	162	1902-03 . . .	277
1896-97	176		

B. *Higher Course for Viticulture and Vine-dressing.*

The higher course for viticulture and vine-dressing was organised in 1892 at Budapest. The object, besides the perfect practical training of the pupils, is to give both in viticulture and vine-dressing an education on a scientific basis and academic level, to qualify those pupils successfully finishing their course for the State service as experts in viticulture and vine-dressing. Since the establishment of this higher course for viticulture and vine-dressing the young men entering in the State service in this branch must pass the final examination.

The conditions for admission are: (1) A final examination at the Agricultural Academy at Magyaròvár, or some other agricultural academy; (2) good health and strong physique.

The course is free. There are some scholarships for those pupils who have passed successful final examinations either at Magyaròvár or at some other agricultural college, amounting to the whole or half the cost of board; the scholarship being 1,200 crowns, the half 600 crowns, paid monthly.

The course is for one year, and begins on the first day of November. The lectures are given on: (1) Viticulture; (2) The chemistry of the vine and vine-dressing; (3) Fruit-tree growing; (4) Analysis of soil; (5) Botany

(physiology and pathology as applied to plants); (6) Entomology (minute insects and defence against them); (7) Geometry and technical improvement of soil applicable in vineyards; (8) Public administration and statistics. All these lectures are given by special experts.

To foster the results of the theoretical education there are the necessary (chemical, entomological, botanical, geological, &c.) laboratories, museum, and library; for the experiments the vineyards and orchards close to Budapest, and the central model cellar. In order to give opportunities to the pupils to learn thorough practical work and experiment during the principal seasons of employment, research excursions are organised to the State vineyards and orchards.

The number of the pupils admitted, and of those who duly finished the course in this superior viticultural and vine-dressing course, were as follows in the scholastic year:—

	Admitted.	Finished.		Admitted.	Finished.
1892-93 . .	11	9	1898-99 . .	30	21
1893-94 . .	9	9	1899-1900 . .	25	19
1894-95 . .	15	14	1900-01 . .	18	17
1895-96 . .	18	13	1901-02 . .	14	12
1896-97 . .	23	22	1902-03 . .	17	—
1897-98 . .	23	21		<hr/> 203	<hr/> 157

It is a matter of congratulation that the pupils who have left the school—except a very small number—up to the present time have been successful. Experience shows, that this higher course of viticulture and vine-dressing supplies a real want, and will require in the near future further development, because we need a much larger number of experts to help private activity in the reconstruction of the devastated vineyards and fulfil the fifth Act of 1896 in fostering the reconstruction, year by year.

C. Course for Cellar Masters.

Since the reconstruction of vineyards and rational viticulture are in our country on a level which—as is unanimously expressed by foreign experts visiting our vineyards—is certainly not inferior to any foreign country, it cannot be doubted that our vine handling and cellar keeping is very much below the mark. To develop and propagate the special knowledge relating to this the Minister of Agriculture organised in 1901 at Budapest a systematic one year course for cellar masters, to which are admitted those pupils who have already passed a two years' course at any of the State lower schools for viticulture. The course begins on the first day of October. The better pupils receive, in order to cover their boarding expenses, whole or half scholarships from the State, these scholarships being fifty or twenty-five crowns monthly.

Besides this yearly course there are organised, according to the number of pupils, short courses for vine-dressing of two weeks' duration, where proprietors, or viticultural permanent labourers, or other men charged with vine-dressing, are educated in the practical work.

The course for cellar masters was extended in the scholar year 1901–2 by fourteen, and in the next year again by fourteen pupils.

In the cellars connected with the course for cellar masters is a requisite quantity from the vines of every vine district of the country, in order to give opportunities to the pupils to know the different vines and handle them in the best possible manner.

The buildings necessary for the course for cellar masters (model cellars, administrative rooms, depôts, &c.), were secured in the first year on lease, but these have been only

temporary, and could not answer fully to the needs of the case. It was a matter of common sense, indeed, to also seek for a permanent abode for the course of cellar masters.

A favourable opportunity was given in 1902, when one of the larger wine merchants, closing his business, was willing to sell his cellars in the parish of Budafok at a convenient place, large and of high value, as well as his grounds in front of the cellar and buildings. The Minister of Agriculture, knowing this offer, and finding the locality thoroughly suited to the requirements for a course of cellar masters, notwithstanding the fact that for this scope he had no credit in the Budget, utilised the opportunity, and with the previous sanction of the Cabinet, bought all the grounds for the course of cellar masters for 90,000 crowns, and took it over for the use of the course from the first day of November, 1902.

The building of a new house containing everything necessary for the use of the course, and the adaptation of the old buildings, were performed in 1903, and for this scope the estimate (680,000 crowns, including the purchase price) was voted in the Budget for 1903.

From the pupils of the year 1902 one was nominated to the lower school of viticulture to Tarczal, two became itinerary lecturers at the course of cellar masters at Budafok, and the others were engaged by private proprietors.

The duty of the itinerary lecturers at the course of cellar masters at Budafok is, in the first place to give on the spot necessary advices to the wine producers on the rational handling of wines, and to explain at the request of the wine producers the more important works connected with wine-dressing. Those who wish the co-operation of the itinerant lecturers in this kind of work

must apply to the directors of the course of cellar masters. The travelling expenses are borne by the proprietors, who ask for them, and they are obliged also to pay them, besides the board and lodging, at the rate of two crowns per diem.

The course of cellar masters fulfils a useful work by giving advice and expert recommendations to any applicant, either verbally or by letter, regarding the manipulation of vines, acquisition of implements and tools for the manipulation of vines, as well as the building of cellars and vine-dressing houses.

The vines dressed in the cellars of the course of cellar masters are brought into commerce, partly directly by the managers of the course, partly through the Market Hall Supplying Farmers' Co-operative Society, in the central market at Budapest.

To propagate rational vine-dressing, two able cellar masters were brought from Germany from the Rhine district in 1902, one of these being engaged at the course of cellar masters at Budafok, and the other at the lower school for viticulture at Ménes.

ORCHARDS AND HORTICULTURE.

In spite of the fact that nearly every part of the country is adapted to fruit-growing, and many districts are able to produce fruits of the finest flavour, in the last decade we were not able to obtain more than 10—16 million crowns yearly by our fruit export, and nearly half of it is represented by dried plums, which are partly only a re-export article. And against this we had an import yearly of 7 to 14 million crowns' value in fruit. We were

not able to secure the market of Austria, notwithstanding the customs union. In consequence there is very much to be done in this respect, and the Department felt itself obliged, in order to proceed in a more scientific manner in this direction, to establish in 1896 a special section for promoting fruit and horticulture.

The primary aim was to help to supply the deficiency in fruit trees, the first step being to increase the present quantity of the trees at least ten times their present number (there were only about 60,000,000, half of them plum trees, and not more than a quarter of them of the better quality), and to give each district a small variety, suitable for its neighbourhood, and of marketable quality. For this purpose the State established, in 1892, five seedling farms, in 1893 four more (an increase of 149 holds).

These farms, however, could not fulfil their object, while the species and kinds of fruit suitable to the soil and climate of the different districts were not clearly known. This was a very difficult question, because in some of the more neglected parts of the country there were no persons qualified to give directions as to the kind or species, so it was absolutely necessary to fix, in the first instance, some few kinds and species for general culture. This list was drawn up by the Department in 1895, but since that time, public opinion favouring stricter limits, this list was still further reduced, with the co-operation of the County Agricultural Committees in most of the counties.

The State farms and orchards of the agricultural educational institutes breed and propagate only the kinds and species contained in these lists.

Only after this had been performed, was it possible to think of increasing the number of the farms, and widening the areas, in order to be able to sell to the farmer the

requisite quantity and quality of seedlings of the kind and species on the list.

In 1896 the State started two new orchard farms and enlarged two existing ones. But these were not sufficient to satisfy the demand—the quantity distributed being three times as much as in the preceding year—and the Department was obliged to provide, at twelve State forestry stations, means to start orchards, which by collecting the seeds of the wild fruits in the forest, and sowing them, and grafting the two-year-old seedlings, have been able to supply the required quantity in strong young trees. At a forestry station in Ungvár, the State started on a farm of sixteen holds an orchard of wild fruit trees to deal with the import of seedlings and seeds.

Likewise there was generally felt the want of grafting stems. To help this and to encourage the fruit-growing in the county of Maramaros, which is more favourably situated for it, the minister started a pattern orchard in Nagybecskó in 1897, on a farm of 51 holds, under the management of the horticultural school there. There were located 230—280 trees of each kind of fruit recommended for growing on a large scale, to show the profitableness of fruit growing, to produce the grafting stems, and to educate horticultural labourers in fruit growing and fruit marketing.

In the same year there were started five more State orchards, two more widened their territories, and three agricultural colleges (Keszthely, Debreczen, and Kassa) founded model orchards. Besides the stud orchard at Nagybecskó, another of the same kind, but principally for best seed fruits, was started near Budapest on an area of sixty-seven holds, called by the name of Queen Elizabeth's model orchard.

The development of the State orchards was:—

Year.	Number.	Extent in holds.	Year.	Number.	Extent in holds.
1892	5	109	1898 .	21	315
1893	9	149	1899 .	22	394
1894 .	9	149	1900 .	23	400
1895	9	149	1901 . . .	25	429
1896 .	11	163	1902 .	25	429
1897 . . .	18	275			

These “pepineries” distribute yearly, partly at a reduced price of 50 fillers (= 5*d.*), partly (principally to schoolmasters and clergyman) quite free, an always increasing quantity of fruit trees, and distribute, quite free to “pepineries” of parishes and associations, seedlings, grafting stems, and wild trees. The grafting stems of those kinds which are recommended for cultivation on a large scale are distributed at a price of one filler (= $\frac{1}{10}$ of a penny) to farmers and parishes as well.

The growth of these distributions has been as shown on the opposite page.

Besides their ever-increasing usefulness in promoting the quantity and quality of our fruit trees, these orchards are at the same time a sort of practical school for those young men who, labouring there for wages, are educated in fruit growing and marketing. In this respect the results in some counties are very remarkable. It was remarked at the first show, held at Budapest in the autumn of 1899, that the great majority of the kinds produced were those species propagated by the State orchards (in apples, Batul, Parmén, Parker, Pippin, Pónyik, Sikula, Török-Bálint, &c.).

The agricultural colleges and forest schools followed the same policy as the State orchards. The gardens and orchards of the Training Schools are also under the control of the horticultural section of the Department, and

Year.	Apple.	Pear.	Plum.	Cherry.	Peach.	Medlar.	Nut.	Mulberry.	Various.	Total.
1892 {	Grafted .. Seedlings.	3,999 122,775	36 72,950	138 60,870	100 9,370	— 2,910	— 3,725	— 20,875	— 5,600	7,279 414,040
1893 {	Grafted .. Seedlings.	4,933 149,200	180 84,400	173 24,000	66 3,000	— 28,050	— 18,520	— 241,400	— 18,080	5,878 559,150
1894 {	Grafted .. Seedlings.	26,742 254,080	3,263 149,820	2,687 103,240	5,980 38,330	— 30,800	— 7,950	— 306,450	— 24,200	49,374 1,103,420
1895 {	Grafted .. Seedlings.	60,423 182,005	9,531 110,415	7,852 67,080	12,209 27,350	3,600 26,200	— 4,500	— 325,620	— 12,880	113,450 894,800
1896 {	Grafted .. Seedlings.	89,434 348,700	41,290 180,100	26,151 99,500	39,958 40,120	16,299 21,300	26,086 10,800	— 126,025	— 30,050	304,472 1,381,095
1897 {	Grafted .. Seedlings.	67,198 327,050	20,662 154,670	18,086 137,900	43,706 25,200	10,104 13,500	28,769 11,650	— 228,890	— 86,720	226,123 1,111,920
1898 {	Grafted .. Seedlings.	61,381 222,050	24,447 40,420	17,821 40,270	37,452 27,900	10,221 26,140	31,218 7,228	— 295,020	— 534,530	218,896 1,374,988
1899 {	Grafted .. Seedlings.	74,450 366,692	19,118 18,117	19,379 16,890	26,246 30,094	5,263 66,486	14,273 4,776	— 198,720	— 402,404	191,762 1,361,479
1900 {	Grafted .. Seedlings.	118,565 957,912	78,802 13,858	67,937 81,400	41,925 92,837	2,463 17,513	9,505 26,307	— 229,200	9,935 167,653	377,993 2,045,180
1901 {	Grafted .. Seedlings.	91,292 554,200	50,876 163,800	29,876 161,900	42,719 26,200	1,772 14,000	15,184 3,700	— 49,400	17,951 64,800	297,507 1,429,500
1902 {	Grafted .. Seedlings.	128,545 365,780	73,782 104,540	70,554 168,210	60,943 64,250	3,452 258,000	7,219 8,415	— —	41,966 69,990	463,304 1,124,640

some of them received grants from the Department to enable them to work on in the new lines.

In preparing grafts, and, indeed, in the whole process of fruit culture, the parochial orchards and those schoolmasters who manage those orchards, hold a very prominent position, especially in those places where the parish orchard is sufficiently equipped and sufficiently large. There are prizes given annually by the Hungarian Hypothecal Credit Co-operative Society to twenty-one schoolmasters producing the most grafted stems, one 600, two 400, and eighteen 200 crowns each. These prizes are distributed yearly, and in examining the orchards of the competitors, the fact is observed that there are more schoolmasters than before, producing thousands of grafted stems.

An Act of Parliament (XII.) of 1894 orders the establishment of parish orchards, in order to produce grafted stems and growing fruit trees on the highways and roads of counties and parishes, and it is the duty of the Minister for Agriculture to make all the counties and municipalities draft bye-laws dealing with orchards and planting of trees on highways. So in 1897 the Department sent out a Committee, inviting the best members of the Municipalities to lay down principles which should form the basis of bye-laws—in fact, to formulate some kind of model bye-laws. On this basis are established most of the parish orchards. The institution of these is absolutely necessary, because the State orchards are quite unable to supply all the demand, which will probably very quickly increase, for trees to be planted on the highways, and mulberry trees for the sake of silkworms.

This is the reason why the State gives to those orchards, if they are properly conducted, wild seedlings, grafted stems, and occasionally ready-grown trees, and for similar reasons are given yearly grants to State agricultural and horti-

cultural associations, which keep their orchards in good working order.

A very remarkable want is felt as to plums, and the Department, in 1900, to supply the increasing demand, bought from the "pepineries" at Orleans and Angers 600,000 one year old Myrabolan and Saint Julien plum seedlings, and distributed these among the State orchards; by this means it is hoped that the propagation of plums of a better kind will keep pace with the apples and pears, as they are much more useful in the congested districts to the poor farmer than anything else.

Owing to the keen competition of the State, private fruit-growing traders and horticulturists have lowered their selling prices proportionally. This, of course, has proved a substantial advantage to the public on the whole.

All our railways have conceded corresponding facilities in carrying seedlings, young trees, and grafting stems at about half the price generally charged, and carry them—by charging *petite vitesse*—at *grande vitesse*.

The planting of fruit trees on highways is very important for propagating fruit culture.

This operation was started on the State highways in 1897, and since that time has been steadily going on under the control of the Ministers of Agriculture and Commerce. The survey of all the State highways was finished in the spring of 1897. The kind and species of trees having been determined for each district, the State orchards gave at cost price the young trees—indeed three of these orchards were established expressly for supplying the demand. The number of trees on the State highways is to-day 129,000. There is room for congratulation, since, except for 6 per cent. (and no more than this), all the trees planted are well and flourishing. One of the

principal reasons of this is the interest the people take in fruit-growing; another is that the trees planted were selected after due and scientific consideration; and lastly, that the overseers and keepers, by means of a course expressly held for this purpose, were thoroughly educated in planting and handling the trees.

The planting of trees on county and parish roads advances by much slower steps, because the seedlings are to be procured, under the Act cited, by the parish orchards, and it is not in their power to do so at present. The planting is done only in a few counties, where either the county itself is a proprietor of an orchard, or it has bought at its own expense the necessary trees. Of course the State orchards cannot contribute to this purpose, until all the State highways are supplied.

The interest of fruit culture was observed under an Act (XIV.) of 1895, which encourages the substitution of orchards in place of those vineyards devastated by the phylloxera, where replanting of the vine is of doubtful value, and of the vineyards in the congested districts. In both places there were distributed thousands of young trees. The same in the new colonisations. In 1899, for instance, there were distributed to 15,128 farmers of these districts, 91,762 young trees quite free.

All these efforts would have been, however, only partially successful, if there had not been made simultaneously an effort to propagate the knowledge of horticultural technical science. There were two different ways before the Department: in the first instance to educate well-trained gardeners and permanent horticultural labourers, in order to save the State and estate owners from foreign labourers, and to have at the disposal of smaller landowners, parishes, associations, and the smaller farmers and horticulturists, the required quality of labour; and in the

second instance to propagate scientific horticultural methods among the smaller farmers as well.

The first step was taken in 1894 by remodelling the Viticultural Institute at Budapest into a horticultural college, in which the higher course of the three courses of horticultural education should be taken; the aim being, in a course of three consecutive years, to train gardeners to become both theoretically and practically proficient.

The matriculation is accorded to those young men, who, after going through at least four years' training in a secondary school, have practised at one of the model horticultural places for at least two years more. At the end of the three years the young men are required to pass a final examination in all the subjects connected with horticulture. The school is placed in a special building, and, it is hoped, is not inferior to any of the similar colleges on the Continent. The first year's course was opened in November, 1894, and in 1897 all was in order. In the first complete course, 1896-97, the attendance was 24, in the second, 31, in the third, 29, and in the fourth, 29. The school has managed since 1898 a modern orchard farm of an extent of 64 holds near Budapest.

For secondary education in horticulture there was started in 1897 a course of a year for those young assistant gardeners who had fulfilled previously, in practical employment of the same kind, at least three consecutive years. This course was instituted because among those labourers who were regularly employed in horticulture, the general mode of training was exclusively practical, generally one-sided, and the theoretical and scientific training absolutely neglected. The course gives the opportunity for the more clever and ambitious young labourers to be educated both practically and theoretically, and to supply the requisite qualities. The number of labourers of this class is more

than a thousand in the country, and they were excluded from many chances of employment because, when employed by the farmers, they did very much damage to the trees, owing to their superficial knowledge of arboriculture. To this course, which is held at the above-mentioned school, 8 to 10 pupils are yearly admitted.

The first course for horticultural labourers was started in 1895, for those young agricultural labourers who had discharged already their military service duties. The object was to supply the want of trained horticultural and viticultural labourers. The final examinations prove, that the education of these young men, who are trained exclusively practically, was a real success, and not only at the examinations but in their subsequent employment. The want of these trained labourers was exceedingly great, especially by small farmers, who require only one labourer for the management of their vineyard, orchards, and market-gardens. As a consequence, the young men are generally hired before they have finished the course. The first courses being successful, some similar courses were started in four different places of the country, with the co-operation of the County Councils. The total number of the pupils is fifty. The course is extended to apiculture, basket-making, and wood-carving; but it is all practical work.

Besides these schools exclusively formed for horticulture, there are some other schools which help very much the diffusion of horticultural knowledge. There is, for instance, in connection with the secondary school at Orosháza, a chair for Horticulture endowed by the Department, and connected with a model orchard of an extent of ten holds. The aim of this section is not only to give some horticultural instruction to the general pupils of this school (numbering 300—400), but to give an opportunity

to the small farmers and agricultural labourers of this over-populated district, who are fully under the influences of the social democracy, to see how it is possible to make a handsome net profit from horticulture and on small farms too. To give the lectures and manage the model orchard, a horticultural lecturer is employed, who lectures to adults in winter time.

An association for orphans are keeping up, near Budapest, a horticultural school, with a four years' course, and they receive some grant from the Department.

In another orphan asylum in Transylvania there are maintained, at the expense of the Department, a lecturer and a model orchard and garden to train the boys in fruit-growing, arboriculture, market-gardening, and apiculture.

The Government lays special stress on interesting the schoolmasters in fruit-growing and horticulture, and in training them both theoretically and practically in these subjects. In this connection the Commissioner of fruit-growing is obliged to observe the horticultural courses in all training schools both State and denominational, and both for males and females, and to enforce the rational management of their gardens. To increase their interest, the Department, in cooperation with the Department for Education, gives twenty prizes yearly, each of twenty crowns, to those pupils who were most zealous and successful in the school, gardens, and orchards.

For schoolmasters otherwise employed, the Department organises yearly, in many places, courses for fruit-growing, lasting ten days. During the years 1892-95, not less than 225, and during 1896-1901, not less than 480 actual schoolmasters had the means of becoming acquainted with arboriculture, and there is not a single one of the 419 administrative districts of the country where there should not be some schoolmasters practically trained in the manage-

ment of "pepineries." Lately, there have been started similar courses for clergymen, because in this country, as in foreign countries, the best of "pomologists" are recruited from the ranks of clergymen. The result has been exceedingly successful. In the first year, 1899, there were only twelve places, and the number of clergymen desirous to be admitted was 172, so that two consecutive courses were arranged. Up to the present time the number of clergymen admitted to these courses has been sixty-two.

Since the start was made in planting trees on the highways, there have been held, in the respective districts, for overseers and keepers, courses of a term of four days in tree-growing and management. Since 1898 until now, there have been organised twenty-seven such courses, the number of overseers and keepers trained being 288.

The winter agricultural courses, which are held in a large number of parishes each year, pay great attention to market-gardening and fruit-growing, and besides these, there are held in special districts special winter courses on horticulture, attended in 1900 by 316, and in 1901 by 715 farmers.

To propagate horticultural knowledge the Department has published for several years a weekly paper, *Gyümölcs-kertész* (Fruit-gardener), the circulation of which is 14,000 copies (to propagate arboriculture), for use of schoolmasters. A popular and illustrated treatise, *Fatengésztes* (Arboriculture), at a price of one shilling, given to poor schoolmasters and clergymen free, was published in 1898; its circulation was 25,000 copies. A popular pamphlet under the title, *Termeljünk gyümölcsöt* (Let us grow fruit!), was also published not only in Hungarian, but in Slavonian, Ruthenian, German, Servian, and Roumanian languages; it had a circulation of 30,000 copies. For the sake of the

foreigner there was published the *Monographie de l'Horticulture en Hongrie* for the Paris Show and for the International Pomologist Congresses. And later was published the *Magyar Pomologia*, which scientifically treats of Hungarian fruit.

Fruit-marketing is another of the special objects of the Department, but until lately preference has been given to fruit-growing for the production of large quantities of marketable fruits.

Marketing in raw state showed the greatest profit, and so the primary attention was paid to it. Our fruit-growers were very conservative and indifferent, and thence arose the foremost difficulty, viz., that rarely had the same proprietor more than a hundred trees of the kinds most in demand. This was the great stumbling block in the export to foreign markets.

The consequence was an attempt to alter the mode of production, and it was with this object that only the most suitable kinds for production "en gros" were grown at the State orchards and distributed amongst the producers. The progress is indisputable, but the result will not be shown until 4—5 years, and only then will the important question of the marketing be urgent.

The movement is going on now in three directions: by local shows and participation in international shows Hungarian fruit is introduced to foreigners; by starting cooperative fruit-marketing societies the organisation of marketing has begun; and lastly, the production of baskets for the carriage of fruit is helped by grants from the Department.

Organisation of cooperative selling societies is required, chiefly on account of the fault of the Hungarian grower in selling his fruit immediately after the harvest without sorting and, in consequence of this, under the fair price.

One other cooperative association was started for the selling in common of onions.

To encourage the fruit export, besides participation in international shows, the Foreign Office ordered our consuls in Russia, Germany, Great Britain, and Scandinavia to report on the fruit commerce periodically to the Department of Agriculture, who, following these reports, directed the growers' attention to the Prussian, chiefly the Breslau, market. Special reports were given on the larger market places in Russia and Great Britain; in the former place there was a success in grapes and finer kinds of apples, in the latter only some experiments of larger cargoes in the last few years. The increase of our export in fruit is to be attributed to these efforts.

There were established to favour our export, principally to Germany, more and more favourable export tariffs. The greatest advantage ordinarily given to export fruit and vegetables, and mostly in inland carriage, too, is that the "*petite vitesse*" rates are given on "*grande vitesse*" carriage.

The Department issued a popular pamphlet on the most rational method of packing fresh fruit—and distributed it; and there is to be issued in cooperation with the railways a uniform system of carriage.

Stress was laid on having baskets of corresponding and sufficient quantity and quality for the carriage of fruit; and the Department of Commerce started special courses for basket-making, while the Department of Agriculture started some plantations of willows to produce the necessary raw material. Besides this, all the parishes, in order to start a basket-making course for winter employment of agricultural labourers and give the necessary land for it, receive some grant in order to adapt the soil, and also

receive free the necessary seedlings. In such a manner there have been started forty-one such plantations, and the increase in plants is more than fifteen millions in the last six years.

There is another question—the marketing of fruit by dry process. In this category the Government leases the necessary machines for cider-making, spirit-brewing, and drying yearly to parishes, associations, and cooperative societies, and in some special cases gives them free. During the last year, helped by special grants from the Department of Agriculture, as well as from the Department of Commerce, two larger factories for fruits and preserves have been established.

Market and vegetable gardening, being besides food of the people and an article of export (the export being more than thirty-seven million crowns) an important branch of horticulture, are encouraged also by the Department. So the horticultural societies are helped in experimental growing of new and better species of vegetables, and in distributing seeds; besides this, at the local shows prizes are given for market gardeners.

In order to enable our small farmers in the South to meet the keen competition of the Bulgarian market gardeners, the Minister of Agriculture took care to let them know the methods of their competitors. For this purpose he organised in the State colonies market gardens on Bulgarian lines, the workmen being the settlers, who thus acquired these superior methods. It is proposed to start such gardens in different parts of the country, principally in the Székely countries of Transylvania, and a grant is proposed in the next Budget to encourage the competition with the Bulgarian gardeners.

The Minister of Agriculture commissioned an official to

learn the method of Znaim for making pickled cucumbers, and some farmers' clubs were subsidised on the same lines.

The Minister sent out his Commissioner for fruit culture in 1903 to Denmark, Sweden, and Norway, to study late blooms and hardier kinds of fruit trees, and some experiments are now being made in those hardier parts of the country which previously have had no fruit culture, because of the late frosts. At the same time there were introduced different kinds of seeds of vegetables, principally cabbages suited to the more severe climate, these being distributed in the county of Arva.

These tendencies and experiments were all started in the last eight years, and the result is that our horticulture is growing up from the neglected childhood to a stronger and healthier youth.

CATTLE BREEDING AND DAIRY-FARMING.

Cattle breeding, in former days the basis of the Hungarian agriculture, has given way during the last century—which marks the development of agricultural cultivation—to grain and seed culture, on account of their profit and value.

But at the beginning of the last ten years it was already evident that the cattle breeding, as in every western country, increases daily in importance.

The correctness of this observation is justified by the experience of our foreign trade, the tendency of which shows that the dominant part of the corn export is joined with an increasing export of animals and food; indeed, about the middle of the nineties, until the great decrease in the swine export caused by the swine fever, it was far in advance of the corn export. This is very important, owing to the fact that in the millions which come into the country for animals and food, the small proprietor and peasant extensively participate.

The census made at the end of 1898, showed in all kinds of animals, except sheep, since the last census of 1887, considerable increase, this increase being in cattle not less than 20 per cent.

The dispositions of the 12th Act of 1897 are a sure guarantee for further increase and improvement in quality, at least for that 3/4th parts of the cattle stock which are under public control and so under general administration.

The policy of the last seven years was in consequence to give this Act full effective force and to overcome the difficulties concerning the supply of communities with breeding stock sufficient both in number and quality.

The measure and increase of the activity are to be seen in those parts of the estimates in the last seven years which fixed the sums granted for immediate improvement of cattle, swine, sheep, and poultry breeding. Inasmuch as the greater part of the expenditure was covered by the regular income provided in the Budget, the financial interest of the Exchequer was plainly protected in developing these branches of agriculture and, notwithstanding the yearly increase in this kind of expenditure, relatively small material sacrifice was involved.

The sums voted for the development and improvement of breeding were used mostly in the way of distributing bulls, boars, and rams for breeding purposes, in exchanging breeding poultry, in granting aids for organised breeding-stock markets, and prizes.

The breeding males are distributed to the parishes on the condition of payment of three half-yearly instalments and at a rebate of 10 to 20 per cent.

Extraordinarily poor parishes, or those of a like kind which had some elementary misfortune, obtained males for breeding quite free.

The greater part of these breeding males were bought

from the State, or from the large private farms by the cattle-breeding inspectors. Only the Pinzgau and Allgau bulls could not all be bought in the country, and some of them were still being bought in later years in Tyrol and Vorarlberg.

It is a matter of congratulation, that the smaller farmers are also trying to develop their live-stock both in number and quality, and for this purpose they are anxious to have the help of the State.

The sums expended and returned to the Exchequer for the promotion of cattle, swine, sheep, and poultry breeding were in late years, in crowns—

	Expended.	Returned.	Surplus of expenditure.
1896 . . .	206,000	40,000 . .	166,000
1897 . . .	538,000 . .	256,000 .	282,000
1898 . . .	1,000,000	600,000 .	400,000
1899 . . .	1,400,000 . .	920,000 .	480,000
1900 . . .	1,595,000 .	1,035,000	560,000
1901 . . .	2,060,000 .	1,500,000	560,000
1902 . . .	2,060,000	1,500,000 .	560,000
1903 . . .	2,060,000 .	1,500,000 . .	560,000

It is evident from these figures that the State provided yearly in increasing manner the material means necessary for the development of breeding, forming at the same time the official organisation necessary to keep it in permanent touch with the farmers, so as to develop in each district the kind of breeding most suitable to the local circumstances.

This official organisation is the institution of inspectors of live-stock breeding.

The scope of these inspectors is as follows:—

1. To cooperate in developing all branches of live-stock breeding and to carry out the orders of the Minister;
2. To control the working of the 12th Act of 1894 and of the order of the Minister of Agriculture relating thereto,

as well as the bye-laws directly or indirectly affecting live-stock breeding adopted by the local authorities ;

3. To take part in the testing of male breeding live-stock ;

4. To provide the supply of breeding animals for common breeding ;

5. To participate in all social movements connected with live-stock breeding, as prize-givings, shows, lectures, &c. ;

6. To give expert advice on all questions relating to live-stock breeding, and to be expert advisers to the small farmers in all questions relating thereto ;

7. To increase the interest in live-stock breeding and to diffuse knowledge relating thereto.

Such inspectors are at present 21 in number, and were nominated—in 1896, 6 ; 1897, 3 ; 1898, 5 ; 1899, 4 ; 1900, 1 ; 1901, 1 ; 1902, 1—altogether 21 ; and the country is divided into 21 corresponding districts, one inspector having to deal with two to four counties.

Having thus the material means as well as the organisation necessary, the Minister of Agriculture provided in the first place for the supply of breeding stock in the common breeding, by buying and distributing stock of a superior quality. In cattle-breeding there were distributed bulls in the year—

	No. of Hungarian-bred.	Bern-Simmenthal, Pinzgau, Allgau race and buffaloes.	Altogether.
1896	192	392	587
1897	241	487	728
1898	513	971	1,484
1899	588	1,240	1,828
1900	1,036	1,850	2,886
1901	1,185	2,243	3,428
1902	1,162	2,867	4,026
1903	1,242	2,940	4,182
<hr/>			
During the seven years altogether . }	6,159	12,987	19,146

In order to multiply pure-bred cattle in the country, to improve their quality, and to make accessible pure-bred animals to provide good breeding material for the small farmers too, especially in some districts the Pinzgau and Allgau breeds, the State imported from the Alplands in Austria and from Switzerland cattle for breeding purposes, and distributed them by loans, given from a special fund voted by the 47th Act of 1895 for cattle-breeding purposes, at 4 per cent., and to be repaid in three to five years, between the farmers.

By such imports were introduced in the country for breeding, in

	Bulls.	Cows or heifers.	Altogether.
1896	69	399	468
1897	131	230	361
1898	439	513	952
1899	315	1,000	1,315
1900	492	508	1,000
1901	225	100	325
1902	389	—	389
1903	280	100	380
Altogether	2,340	2,850	5,190

The Minister provides the insurance against the death or slaughtering of these bulls imported by the State for the parishes, thus making up for, on the one side, the loss from such an unforeseen calamity, and popularising, on the other side, this insurance, which is so important for agriculture.

To promote the cattle-breeding in the most neglected districts, the following loans were given from the special fund voted for cattle-breeding purposes, to be repaid in three to five years, in 1902, in crowns—

To the county of Hunyad	60,000	crowns.
„ „ Arad	40,000	„
„ „ Vas	30,000	„
To the congested districts	30,000	„
Altogether	160,000	„

These loans were used exclusively to help small farmers in buying heifers and cows of a better quality.

The exceedingly bad hay harvest in 1891 in some districts of the country, especially in the mountains, resulted in the small farmers not being able to feed their cattle during winter, and so forced to sell them before the proper time. To obviate this, the interference of the Government became necessary.

For this purpose the Minister of Agriculture—using an extraordinary credit given by the Council of Ministers, amounting to 120,000 crowns—bought and distributed fodder-straw at the low price of 24 crowns per ton to help the winter keep of live-stock of small farmers—the quantities being in kilograms, in the counties of—

Turóc	469,415 kilos.	Zólyom	381,555 kilos.
Trencsén	1,675,755 „		
Liptó	356,978 „	Altogether	2,883,603 „

For the interest of the live-stock, especially cattle breeding, the prize competitions and breeding-cattle markets, which were organised in yearly increasing number and interest by agricultural societies and agricultural committees with some State help, were very useful. The amounts of the grants given by the State were, in crowns—

1896	4,340 crowns.	1901	49,064 crowns.
1897	23,846 „	1902	57,133 „
1898	28,200 „		
1899	28,562 „	Altogether in 7 }	234,988 „
1900	43,873 „	years	

The breeding of the bulls necessary for common breeding in sufficient number and corresponding quality is carried out on the State farms, as well as on the most prominent private breeding farms. The Minister of Agriculture made an arrangement with a large number of

these farmers that the bulls coming from their farms should be under surveillance for health purposes, principally as a safeguard against tuberculosis.

The Minister of Agriculture started a special arrangement for the disposal of the surplus of breeding live-stock, sending a portion of the animals bred on State farms, as well as some on prominent private farms, to the Moscow breeding-stock show in 1902, namely, 26 pure-bred Simmenthal, 8 half-bred Simmenthal, and 6 pure-bred Montafon cattle, all of which were sold there at very satisfactory prices.

Swine- and sheep-breeding was promoted in the same manner, by distribution of boars and rams. Notwithstanding the difficulties arising from the swine-fever and from the perpetual decrease of sheep-breeding, there were distributed in the years—

1896	.	423	boars.		
1897	.	605	„	and	88 rams.
1898	.	1,012	„	„	112 „
1899	.	1,148	„	„	178 „
1900	.	1,535	„	„	316 „
1901	.	1,497	„	„	118 „
1902	.	1,749	„	„	216 „
Altogether in seven years		7,969	„	„	1,028 „

The poultry industry, the income from which is mainly distributed among the poorest classes of agriculturists, and is therefore a very powerful help towards the livelihood and comfort of the people, developed, without any State or social interference, into a very powerful economical factor.

The export of the year 1895 was, in crowns—

For live and dead poultry	15,806,762	crowns.
For feathers	9,611,250	„
For eggs	17,478,216	„
Altogether	42,896,228	

To add to this source of revenue, since an increase in supply was possible, the first object was to secure poultry more suitable for the foreign market. This can be done by increasing the size of Hungarian poultry, which, though excellent in quality and flavour, is small.

To make them larger the Hungarian poultry were crossed with Plymouth and Langshan in fowls, by Peking in ducks, by Emden in geese, by French and Bronze in turkeys. The blood of the fowls is, as a rule, only once crossed, so as to save the advantageous qualities of the pure Hungarian breed, which is eminently adapted to local breeding.

Such a kind of poultry as the Hungarian is a treasure indeed. It is a very hardy and healthy bird, able to defend itself, rapid in growth, good layer and sitter, and gives little trouble. The aim of the State was to correct the only disadvantage, the small size, which practically destroys its value, by the loan of the cocks of those kinds enumerated above in every parish, and by lending a larger number than there were of local-bred cocks; this crossing being followed by eggs of a darker appearance and larger size, increased the marketing of the eggs, and at the same time the size of the chickens.

To produce the necessary quantity and quality of breeding stock for this purpose the Department organised poultry farms in all the agricultural and farm schools, as well as independently at Gödöllő in 1898 one on a larger scale, and changed the old stock of the stewards and servants on the State farms for the new kind. Besides this, the Department announced that it was willing to buy approved stock from private dealers, who therefore kept up a good supply.

The poultry farm at Gödöllő was built on the Crown estate close to a pond in a pasturage land of eighteen

holds, suitable to all kinds of poultry. Each breed has its own private ground. There are incubating stations, necessary appliances, and lodging for the manager.

The Minister organised at the poultry farm of Gödöllő a school for poultry farm labourers, to educate practically the labourers on poultry farms not only in correct and rational breeding, but also in preparing the birds for market.

For the use of the pupils of this labourers' class there are attached to the manager's lodgings bedrooms, dining-room, school, and implement-rooms.

The distribution in exchange for pure-bred fowls began in 1897, but increased in a noteworthy manner only in the succeeding years. There were distributed in the years—

1898 . . .	1,100 fowls.	1902 . . .	8,031 fowls.
1899 . . .	3,310 „		
1900 . . .	6,450 „	Altogether in five	
1901 . . .	7,666 „	years.	} 26,557 „

The State poultry farms exchanged the eggs produced and not wanted by them with small farmers of the neighbouring districts for common eggs.

Attention was also paid to the matter of marketing. To foster export, and so to increase the revenue of the small farmers, the policy adopted was to eliminate the superfluous middleman, and to assure the good quality and freshness of the exported eggs.

The experiments in this line were successful.

The egg-collecting stations, which were organised for the most part in connection with cooperative dairies, but partly by independent egg-collecting cooperative societies, were able to sell the products of the members of the productive societies at prices about 30 to 40 per cent. higher

than those of the preceding year, and increased also at the same time the export.

The value of export in poultry and fowl products had increased in 1900 already to 72 millions of crowns. In this increase of the export in five years by 80 per cent.—from 42 millions to 72—both private industry and State interference participated.

The dairying industry is in very close connection with the cattle-breeding ; this industry—principally on private initiative—is so much developed in our country, that it is, at any rate on the average, well known also to those farmers who had not yet the opportunity to take this branch into their sphere of business.

To include this in the business plans of the small farmers was the aim and scope of the village cooperative dairies for butter production and export.

All the inducements put out to start village cooperative dairies were for a long time unsuccessful, because the small farmers were indisposed to cooperate, and did not think it worth while to market their small quantities of milk, and it was really a very hard task to induce our farmers to risk a capital of one or two thousand crowns in each of the cooperative societies.

At last a successful start was made in a small co-operative dairy in 1895 in the parish of Mária Kémend in the county of Baranya, not quite half of the small proprietors becoming members of it ; but when the dairy business did begin, every farmer, without exception, became a member, carrying all the milk not wanted for his own household, daily about 1300—1400 litres, to the dairy.

Preparing from this milk by the necessary implements butter and cheese, they were able to sell—after deducting expenses—a litre of milk at twelve fillers net. So the

net result for all the members of the dairy was in the first year 35,000 crowns ; and this produce up to that time, of course produced on a smaller scale, was altogether wasted in the household.

The news of this result spread quickly in the district, and in the next year the parishes of Háságy, Szederkény, Nyomja, Pécsvárad, and Nemet Boly organised, also by some State aid, cooperative dairies. The movement being successful, spread yearly at a quick rate, as shown in the following table :—

Year.	Number of members of coop. dairies.	Number of shares.	Quantity of milk used in the dairies.	Kilogrammes of butter produced.	Income of the dairies in crowns.
1897 . .	2,767	5,937	4,790,132	191,254	539,282.16
1898 . .	10,402	19,701	10,531,407	429,838	1,153,456.26
1899 . .	15,357	26,917	22,147,144	878,174	2,327,202.07
1900 . .	26,952	45,934	49,436,794	1,195,633	4,285,359.62
1901 . .	40,673	69,507	66,718,036	1,705,001	7,017,959
1902 . .	46,344	80,871	79,700,000	2,248,965	8,325,528

The dairy industry gained ground, through the cooperative dairies to an increased extent, amongst the small proprietors, the consequence being not only the gain of new sources of revenue but also the increase of cattle-breeding, and in connection the more rational farming in the other branches of agricultural industry.

The great interest taken in the cooperative dairies is shown by the fact that in the year 1902 seventy-six new societies were started, and so the number of cooperative dairies of the country increased to 452. Such dairies are distributed in thirty-nine counties, the greater part being in the counties of Baranya, Bács Bodrog, Torontál, Temes, Vas, Veszprém, and Moson.

In those districts where cooperative dairies are numerous, they started, for marketing and utilising the produce, central depôts for the butter industry. The cooperative dairies carry in the cream, and the butter is exported in

wagon-loads to foreign countries, mostly to Germany, where the quality of the butter secured a prominent market.

The first central dépôt for butter-making was organised in 1899 at Temesvár, the next in 1900 at Szabadka, Dombóvár, and Veszprém.

These four central dépôts utilised in 1902 not less than 3,314 million kilogr. of cream to 1,090,428 kilogr. of butter, and paid to the cooperative dairies, after deducting expenses, 2,031,412 crowns.

In such a manner was produced a new merchandise for export, capable of development, and whose perpetually increasing share in the foreign trade was as follows, in crowns—

1895 Milk import	20,216	Export	1,960,110
Butter (fresh or salt)	262,522	„	622,404
Cheese	2,886,410	„	1,960,126
	<hr/>		<hr/>
Altogether	3,169,148		4,542,640

Surplus of export, 1,373,492.

1902 Milk import	91,704	Export	4,104,888
Butter	234,475	„	8,942,232
Cheese	2,715,988	„	2,633,495
	<hr/>		<hr/>
Altogether	3,041,988		15,680,615

Surplus of export, 12,638,627.

Thus the increase of the net export in the last seven years was more than ten millions of crowns, caused principally by the development of the butter industry.

The private dairies are also developing in a successful manner, and this justifies the permanent increase of export, notwithstanding the steady increase of the home consumption. In the last numbers mentioned the export of butter was 547,500 kilogr., and of the cheese 489,100

kilogr. more than the quantity exported in the preceding year.

The produce of the Hungarian speciality, of the Liptó cheese from sheep, increased also in the later period in the counties of Transylvania, as well as in the southern mountain districts.

The Agricultural Minister organised, to foster the dairy industry, special dairy courses; for this purpose there are available, besides the Dairy School at Sásvár, developed and amplified in the meantime, four courses for dairy labourers at Munkács, Gödöllő, Kisbèr, and Nagy Szécsény—the first three for men, the last for women. The school started at Kis Ber is placed for eight pupils, all of whom receive scholarships.

Parallel with the quick development of the dairy industry, it was also an absolute duty to develop the education in dairy work in such a manner as to be able to keep pace with the progress of the dairy industry.

BEE-KEEPING.

Apiculture is one of those side-branches of the agricultural industry which, without demanding much trouble, much capital or working expenses, and without keeping the farmer from his proper sphere of work, is able to increase considerably the income of the farmer, and so improve the material position of the poorer agriculturist. It is but natural that, under these circumstances, the Government also formerly paid attention to this branch of the agricultural industry, and tried to develop a rational apiculture, on the one side by diffusing the requisite knowledge, and on the other side by materially helping the bee-keepers of the poorer classes.

In later times, besides the numerous other branches of agriculture, apiculture has received, as a source of income for small farmers, increasing attention from the Minister of Agriculture, who is trying to develop rational apiculture by broadening the old methods, by widening the technical knowledge, and by increasing material help.

For education in apiculture up to 1897 there were appointed one inspector and six itinerant lecturers. Their salaries were paid, up to the end of 1897, partly by the Minister of Education ; but since 1898, however, for the sake of uniformity, the whole amount is paid by the Minister of Agriculture.

The residence of the apicultural inspector was transferred from Buziás to Budapest, where he has lectured, since the scholar-year of 1897-8, systematically on apiculture in the Higher School of Horticulture.

Since the autumn of 1898, the residences of the itinerant lecturers have been transferred by the Minister of Agriculture to such places as are provided by training-schools, and since that time apiculture is a regular subject for lectures in these schools. The number of itinerant lecturers was also increased, the sixth district, covering the counties of Transylvania, being divided into two, and for the residence of the new lecturer the city of Kolozsvár being designated. In organising this district, the chief attention was paid to the Roumanian population, which is by the peculiar circumstances of its livelihood principally devoted to apiculture.

The work of the inspector and itinerant lecturers became by these alterations much more successful, because, besides the fact that they were able to give yearly an increasing number of lectures in the parishes, agricultural and dairy schools, they could lecture systematically and propagate apicultural knowledge in the horticultural school

and in the training-schools during the whole year, and give expert advice to all who required it; particularly in helping the start of bee-keeping, in marketing the product, in buying seeds for trees, bushes, and other plants of good qualities for honey.

Of the work done by the inspector and itinerant lecturers in the last seven years, the following data give an idea. They visited the following number of—

	Parishes.	Training-schools.	Agricultural colleges and schools.	Horticultural or viticultural or dairy schools.	Bee-keepers started by State loans.	Remarks.
1896 .	299	16	4	3	16	<p>{ The control of bee-keepers is enumerated in the visits to parishes.</p> <p>{ One of the lecturers was engaged in managing the bee farm at Gödöllő.</p>
1897 .	322	20	8	2	22	
1898 .	397	18	6	4	—	
1899 .	528	23	10	7	—	
1900 .	534	23	7	6	—	
1901 .	634	23	10	13	—	
1902 .	597	16	9	10	3	

The decrease in the number is justified by the fact that one itinerant lecturer was engaged in May, June, July, and August at the bee farm at Gödöllő, so he was unable to give lectures in his district during those months.

The apicultural inspector, as the controller of the apiculture of the country, besides controlling the itinerant lecturers, gave lectures, started bee farms, and made further studies.

In order to propagate apicultural knowledge, the

Minister of Agriculture organised in 1897 a permanent and instructive apicultural show in the Agricultural Museum at Budapest; and in 1901 an exhibition of all the apicultural objects shown at the International Exhibition in the preceding year at Paris, at the Industrial Museum at Budapest.

To propagate apiculture, the Minister of Agriculture subsidises poorer beginners in bee-keeping by beehives and apicultural implements, to help them in their work. Besides this, special care is taken in subsidising the bee-keeping of various institutions and schools, the results of which are to be seen in the following table. Subsidies were given to—

	Individual farmers.	Training schools.	Agricultural schools.	Dairy schools.	Horticultural schools.	Forest guard schools.	Continuation schools.	Orphan and charity schools.	Parish bee-keepings.	Police stations.
1896	7	1	—	—	1	—	—	—	—	—
1897	10	—	—	—	—	—	—	—	—	—
1898	43	2	1	1	1	—	—	—	—	—
1899	103	2	—	1	1	—	—	2	—	8
1900	44	1	1	1	1	—	4	1	4	—
1901	74	1	—	—	—	4	—	—	—	6
1902	38	—	—	—	—	—	1	—	—	—
Altogether .	319	7	2	3	4	4	5	3	4	14

A subsidy in cash was given twice to the Roman Catholic training-school at Kassa, for the purchase of timber material, to educate the pupils in making beehives.

Apicultural literature was distributed free by the Minister of Agriculture to the number of 30,000 copies.

There were started from State loans numerous bee farms—121 in number—which are developing in almost every

place satisfactorily, and are yearly more and more successful. In 1899 was organised the State bee farm at Gödöllő, on a farm of 40 holds on Crown land.

On this bee farm there were built in 1899 two buildings, one closed, one open bee-house, the land being planted with trees and shrubs good for honey ; in the buildings there are the lodgings of the staff, school-, work-, and bed-rooms, and necessary implements. In 1900 there were built a covered and an open bee-house, the first for double, the second for single beehives. In 1901 the third building was built, containing one lodging, one bedroom for working pupils, and a well-selected museum. There was built one cellar, above this the honey store, a summer dining-room for the temporary course pupils, and a large bee-house. The farm acquired a collection of beehives of different types, which are exhibited before the middle building of the farm. The farm, besides lectures and model bee-keeping, cultivates trees and shrubs of good honey quality, makes experiments on these plants, grows their seeds, and distributes them, partly free, partly at a nominal price. The Minister supplies from this place the poor clergymen, schoolmasters, small farmers, keepers, &c., with bee swarms, beehives, and implements. Besides the two-year course devoted to the education of bee labourers for the larger bee farms, during the summer there are organised courses of two or three weeks for clergymen, schoolmasters, women, railway guards, agricultural labourers, &c., to educate them in rational apiculture.

The farm is provided with a good carpenter's shop, where the methods of preparation of beehives of the most approved types are taught to the pupils, as well as to the clergymen, schoolmasters, keepers, small farmers, &c., admitted to the course.

Honey as a form of nutriment is gradually being more

accepted in the household. A peculiar fact is that this tendency increases by the education of women, and for this the bee farm at Gödöllő is the only experiment up to the present time. Besides this, the participants in the women's classes being mostly schoolmistresses, the education in apiculture yearly more and more invades elementary education.

In 1902, 38 schoolmasters, 1 professor in the academy for forestry, 1 head gardener at the forestry academy, and 8 small farmers were educated at the temporary courses of the farm.

But the Minister gives subsidies in cash to those poorer farmers interested in apiculture and the associations engaged in popularising rational apiculture. The number of the latter was much increased during the last six years by reason of these subsidies.

The State bee farm at Gödöllő was opened by the Minister on the 1st of June 1902, the leading apiculturists of the country and of foreign countries being invited.

In this year the number of working pupils was six, who passed the final examination in August 1903, and all have obtained employment on the larger bee farms.

The number of these working pupils was increased to 12, and, after a two-year course, each year 6 leave the farm. At the short courses were educated, in 1903, 16 clergymen, 37 schoolmasters, 20 women, 1 railway clerk, 39 forest keepers, and 30 small farmers—altogether 143 pupils.

To foster the marketing of apicultural produce the apicultural inspector mediates yearly to trustworthy buyers the marketing of honey. Besides this, the Country Apicultural Association, which sells the honey of the inland producers to a large extent, organises regular sales in the Market Hall at Budapest for disposing of their honey. The

honey produced through these measures showed satisfactory development, as the statistics on the opposite page prove.

SERICULTURE

Sericulture gives to the poorer part of our population, without any outlay, and by using the work of the weaker portion of the family (women, old men, and children) only, considerable benefit just before the harvest time, and therefore just at the time when the greatest need is felt amongst the poor. That is the most important fact in sericulture. Another fact of equally great importance is that the country absorbs yearly 50 million crowns' worth of silk merchandise, which is paid to foreign countries; and this in spite of the fact that Hungarian raw silk can supply the most refined manufactured silk, and that our population has the ability to undertake this kind of labour, whereby thousands and thousands of working-men could receive profit and comfort.

It is only reasonable that towards this, as it were, auxiliary branch of the agricultural industry the Government showed the warmest sympathy from the beginning, and did all in its power to assist all the experiments made in the interest of sericulture and of the farmers engaged therein by the National Sericulture Inspector, whose office was established in 1880. This office has from the beginning been under the control of Mr. Paul Bezerédy, who guides it with great self-sacrifice and devotion.

This sympathy was in later years more necessary than before, because six years ago the cause of our sericulture was certainly involved in a crisis. Until 1893 the inspector was in the favourable position to cover wholly

Year.	Number of parishes supplying statistics.	Number of beehives in autumn.			Produce of honey.			Produce of wax.			Total value of apicultural produce in crowns.
		Old beehives.	Modern beehives.	Total.	In q.	Value in crowns.		In q.	Value in crowns.		
						Per q.	Total.		Per q.	Total.	
1896 . .	11,678	404,520	158,997	563,517	32,371	60	1,942,260	2,049	200	409,800	2,352,060
1897 . .	11,822	443,745	197,382	641,127	34,183	60	2,050,980	2,236	200	447,200	2,498,180
1898 . .	11,839	449,309	205,248	654,557	37,478	60	2,248,680	2,251	200	450,200	2,698,880
1899 . .	11,725	439,309	210,245	649,554	32,478	84	2,728,152	2,271	200	454,200	3,182,352
1900 . .	11,815	420,500	295,738	716,238	38,540	84	3,237,360	2,929	200	585,800	3,823,160
1901 . .	11,833	357,764	201,672	559,636	30,525	84	2,564,112	1,840	200	368,052	2,932,164
1902 . .	12,030	378,138	203,190	581,328	27,111	84	2,277,296	2,032	200	406,485	2,683,781

from his own business income all the expenses incurred by the propagation of sericulture.

In the last year, however, the position of the silk industry became all over the world very critical, due to events which could not be foreseen. As a consequence of this, the Inspector for Sericulture was no longer able to cover his expenses from his own income, and was obliged to turn to the Exchequer.

To ease this critical position, the inspector was obliged, in accordance with the decrease of the silk prices, to lower the prices paid for the cocoons. But this was not done before he had been able to satisfy himself that by lowering the price the producer would yet not incur any loss. The whole business of the inspector was so arranged as to assure the possibility of the gradual repayment of the advances received from the Exchequer from 1897 to 1899, so that it would be possible to state, when sericulture was finally established in Hungary, that this was done at its own expense.

It was only natural that a decrease in the prices paid for the cocoons of 15–20 per cent. involved a decrease in the number of the silkworm-breeding families, and only for the last two years has there been an increase again, as is shown by the following numbers of the families breeding the worms :—

1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
94,865	102,243	108,750	86,467	79,928	87,825	85,888	94,605

These numbers show clearly how dangerous it is to lower the price given for cocoons beneath a certain level, and how necessary it is to protect our silkworm breeders against the violent fluctuations in the price of silk, which extended in the last year to 50 per cent. of the prices. As soon as circumstances permitted, the inspector

increased at once the prices paid for cocoons, but, in spite of the fact that this increase was duly advertised, a large part of the breeders (fortunately, mostly the unsuccessful and lazier part), frightened by the experiences of the preceding year, did not take up the work again, and so the number of the breeders still decreased.

Only the new increase made in 1900 in the price of cocoons called back again the breeders, and so it is to be hoped that the number of the breeders will soon reach again the former quantity.

The central inspector—who has extended his business during the last six years to the counties of Békés, Bihar, Csanád, Esztergom, Fejér, Győr, Hajdu, Jász-Nagy-Kun-Szolnok, Komárom, Nyitra, Pozsony, Sopron, Veszprém, and Zala—carries out his policy in developing sericulture in two directions. On the one side, in order to increase the number of breeders, which necessitates an increase of mulberry trees, more attention must be paid to the cultivation of the latter. For this purpose, the State “pepineries” (forestry, agricultural colleges, schools, &c.) increased considerably in later years the production of mulberries, and so the Sericultural Institute was able to distribute yearly an increasing number of seedlings to the breeders, free of cost, and control the further cultivation of these trees. The same institution distributes, free of cost, yearly an increasing number of mulberry seeds. There were distributed—

	Mulberry seeds, in litres.	No. of seedlings of two to three years old.	No. of young trees for planting.
1895 . .	3,653 $\frac{1}{2}$	592,007	29,515
1896 . .	3,033	1,854,600	38,501
1897 . .	3,407 $\frac{1}{2}$	5,231,169	23,788
1898 . . .	3,080 $\frac{1}{2}$	6,005,205	29,325
1899 . . .	3,498	8,692,138	59,014
1900 . . .	3,232 $\frac{1}{2}$	7,638,313	134,048
1901 . . .	3,350 $\frac{1}{2}$	8,970,595	69,843
1902 . . .	2,556 $\frac{1}{2}$	6,621,073	119,295

Besides this the Institute keeps in 163 places, at its own expense, mulberry nurseries, and these supply saplings for planting in increasing numbers in their immediate districts. Further, the Institute undertook in all those counties where the sericulture was to be introduced the control of the parish nurseries. From these nurseries, the Institute transmitted for planting in the ensuing years the following numbers of trees :—

1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
118,830	164,258	187,555	299,663	220,655	249,729	239,749	243,724

It is to be regretted that a considerable part of these mulberry trees in the parishes, partly from lack of attention, partly from lack of knowledge, perished, principally on the high roads. The planting and controlling of these cannot be effectively carried out except by the authorities who maintain the roads. For this purpose the inspector asked the royal highway authorities to undertake the planting of mulberry trees on the roadsides, the necessary young trees being conveyed there by the inspector free ; and with this object the inspector has established close to the residences of the highway inspectors already 45 mulberry nurseries. Thus it is possible, almost without any cost, to convey the young trees to their places of destination ; and, besides this, the roots of the trees are more protected, since the interval between carriage and planting is short, which secures the prompt growth of the plant, when planted in similar soil to that in which it was reared.

For mulberry-tree planting there was organised under the control of the sericultural inspector a special department, consisting of a chief inspector and four inspectors, whose exclusive duty it is to control the mulberry “popeneries” organised by the Institute. The members of this staff are obliged to be present at the

planting on the highway sides, to guide the planting operations, and also to educate in rational tree cultivation the highway inspectors and keepers, and to control them.

In connection with these the central inspector has to superintend the permanent education and control of the silkworm breeders. In this direction at present there are already in 2,500 parishes inspectors appointed who have a knowledge of silkworm breeding, whose duty it is to propagate the advantages of sericulture, to hatch in common the whole quantity of the worms to be distributed in the parish, to distribute the worms when two or three days old to the breeders, to control as far as possible daily the breeding and educate the breeders. These parish overseers are again controlled by 83 district inspectors, working under the lead and control again of nine sericultural chief inspectors.

For the same purpose at Keszthely a course was started for mulberry-tree cultivation, which was attended by all the inspectors of the cultivation of mulberry-trees, and all those sericultural inspectors who were entrusted with mulberry "pepineries."

To develop the technical knowledge, in later years the Institute distributed amongst all the breeders tables and leaflets provided with illustrations, and has placed them in all the elementary schools in the sericultural districts, and in some 4,000 parishes had them published at the vestry-houses. Last year a special sericultural almanac propagated work relating to silkworms. This almanac was distributed to the number of 120,000 copies free to the silkworm breeders in Hungarian, German, Roumanian, Servian, Slavonian, and Croatian languages.

The other object of the Government is to secure the working of the cocoons at home into industrial articles, and to develop this branch of agriculture to an industry,

and so secure for the people of the country the large income arising out of it. We are gradually progressing in this direction also, but have started up to the present only some silk-spinning factories, in the hope of being able later to transform this half-raw produce to the manufacture of silk. Only then shall we attain the end to which we must try to march in developing our sericulture.

Private industry having abstained from the establishment of silk-spinning factories, the State was obliged to do this also, but in the hope that all the business of sericulture will be taken away from State patronage and handed over to private enterprise: this would make the spinning factories prosperous, which cannot be effected under State-management.

Under the direct control of the sericultural inspector, indeed, it is impossible to arrive at technical perfection in the factories, which is easily attained by private enterprise; further, it is impossible to utilise the momentary fluctuations in prices on the world's markets so advantageously as is possible to private people. And, lastly, in such case the Exchequer could free itself from the burden by giving the necessary floating capital, and so this sum, if only by being lent, could much more advantageously fructify by promoting the general interests of sericulture.

With this conviction the Minister of Agriculture leased the spinning factories at Pancsova and Ujvidék to a French firm of a first-rate reputation. The factories are bound to work up, primarily, Hungarian raw produce. Consequently one of the most difficult questions arose: what price should be given and what terms are to be secured in selling the cocoons to these factories? The agreement was, that the factory should be obliged to take over the 60,000 kgr. of raw cocoons required by it yearly, to be paid for each month at the average price of the same

qualities of cocoons in the preceding month on the Milan silk market. So the factory knows exactly in advance what price shall be given for the necessary raw material in the following month; on the other hand, the inspector is assured of obtaining the yearly average prices, at any rate. The carriage of the cocoons worked in the home factories to Italy, as well as the selling commission, being saved, this difference—about 40 to 50 centesimi per kilogram—gives the measure of the advantage which can be given by the State without any sacrifice at all to the tenants of the factories. This advantage, involving no sacrifice at all for us, satisfies the tenants, as is shown by the fact that for the lease of the new spinning factory built in 1879 at Győr, more firms tendered offers from Dalmatia, Italy, and France one whole year previously, and the tenant of the Ujvidék spinning factory asked for the extension of his contract for ten more years and the increase of the factory with 30 more spinning-wheels. This fact, and the general tendency shown towards leasing these factories by those from foreign countries, form the best possible proof that we have gained the confidence of experts all over Europe as to the development of our silkworm breeding and silk industry.

The time has come for starting new factories also because we secured the gradual increase of our cocoon production, and this production not requiring any longer the whole activity of the Government, there are time and money to cover the very great expenses connected with starting new spinning factories. The locations of the new factories are at Tolna, Győr, and at Komárom, which was the last to be started. The inspector was obliged to keep the spinning factory at Tolna—not without some sacrifice—under his own management, for the purpose of educating there working-men for the spinning factories. The factory at Győr began its work in the autumn of 1900 after the

cocoon-store at Györ had educated 120 women hands in spinning of silk. The spinning factory at Pancsova was ready and handed over to tenants at the beginning of 1900.

We had already in 1902 five silk-spinning factories. Of these those at Pancsova and Ujvidék are rented by powerful French firms. The spinning factory at Tolna is managed by the sericultural inspector himself, to work up the cocoon, which is difficult to market, and still more to educate there Hungarian managers and foremen for the Hungarian silk-factories, to place them at the disposition of the foreign farmer.

The factory at Györ was up to recent times leased by a Zurich firm, Bodmer-Muralt. This firm, however, disposing of its Zurich factory, and following quite a new departure in the silk industry, also gave up the lease of our factory. At the first intelligence of the removal of the firm Bodmer there were several applicants for our factory at Györ, one of whom, the firm Dumas and Martin from Cevennes, obtained it. Cevennes is the district where the best silk of the whole world is produced, and this firm has worked there for more than a hundred years, and occupies almost the first place in this industry. It will be a very important factor in the development of our silk industry, that this new and still young industry of the country is in the hands of such a well-known firm.

The factory at Komárom was built in 1902. This is the largest in the country. It was not quite ready, when the firm of Henckell Du Buisson and Company from London tendered their offer to lease it, hoping to take it over soon. But the Government held up the lease for the time, until the first difficulties of the start are overcome, and guarantees can be given that the female workers are sufficiently skilful to secure favourable results in business.

By the leasing of these factories the point of view was always taken that we shall serve at the same time our interests if we pay attention to the best interests of the lessees. This will be the best help for our silk-spinning industry.

The Minister of Agriculture, in view of the great development of this industry, built a new factory at Lugos in 1903, and will start another new one at Mohács in 1904. For the lease of each there are already several applicants. This shows that the experts are of the opinion that our silk-spinning industry—however young—is of proved utility and benefit.

This is a matter of congratulation and even more, if we reflect upon the fact that the State offers only so much advantage to the lessees as is saved by the selling the cocoons to them, and thus not obliged to carry the cocoons for marketing purposes abroad.

This small advantage given to the factories enables the Government on the one side to amortise the cost of buildings and implements, on the other side to supply in every spinning factory yearly on the average 150,000 crowns in wages to the female workers.

All the signs tend to show that our sericulture and silk industry is based on healthy foundations, and we were successful in gaining the confidence of France, Switzerland, and Italy in its development. This is assured by the further fact, that since 1898 the Hungarian silk is officially noticed on the Silk Exchange at Lyons, and so the absolute equality of the Hungarian silk with any other silk of the world is admitted.

The fact that the first firms of Europe are competing for the lease of our spinning factories, is in the first place to be attributed to the excellent quality of our cocoons, but to this must be added the skill and tractability of the

Hungarian women workers, and the fact that our spinning factories are equipped with the latest makes of the modern machinery. And really there is no silk at present in the world which can surpass the Hungarian silk; there are no such silk prices, in average, which have not been attained by the Hungarian silk.

Our export is permanently increasing; the value of the export was, in the five years—

	For cocoons, in crowns.		For raw silk, in crowns.
1885	83,722	.	337,148
1890	888,580	.	436,800
1895	1,978,854	.	546,958
1900	2,495,381	.	1,146,670
1901	1,434,349	.	1,631,060
1902	890,105	.	2,579,810

These numbers show not only increase of production, but also the fact that we are working up yearly more and more cocoons to half product, and this increase of value is placed to the credit of the country.

From these results we can be assured that it is worth our while to go further in this way.

The further development of our silk produce and silk industry depends on the increase, in sufficient number, of mulberries.

The power and elasticity of the silk shreds depends on plenteous nutrition of the worms. When the shred is feeble, it shows the poorness of nutriment of the worms.

The important factor in increasing the number of mulberries is the parish nurseries, of which 6,665 are under the control of the sericultural inspector and his 396 district nursery inspectors.

The development of our silk produce and mulberry trees since the establishment of the sericultural inspector is shown by the following tables:—

THE DEVELOPMENT OF OUR SILK PRODUCTION FROM 1880 TO 1902.

Year.	Number of		Distributed cocoon seeds		Produced cocoons.		Average of cocoons after an ounce of seed.		Earnings of producers after the cocoons.		Earnings of silk industry workers, in factories, depots, &c.		Total earnings paid to silk producers and workers.	
	Parishes.	Producers, in families.	Cocoons.		Cocoons.		Cocoons.		Cocoons.		Cocoons.		Cocoons.	
			Kilograms.	Grams.	Kilograms.	Decagrams.	Kilograms.	Decagrams.	Crowns.	fil's	Crowns.	fil's	Crowns.	fil's
1879.	—	—	—	—	2,507	—	—	—	5,618	—	1,782	—	7,400	—
1880.	71	1,058	12	000	10,131	71	21	10	22,125	32	17,952	84	40,051	16
1881.	423	2,974	53	000	41,537	04	19	59	83,633	44	46,151	46	129,754	90
1882.	433	3,675	49	216	24,445	87	12	41	52,894	22	40,454	76	92,848	98
1883.	463	6,261	104	583	72,142	86	17	24	156,370	22	99,198	48	255,568	70
1884.	657	9,892	161	041	122,133	04	19	05	260,741	16	147,194	30	407,955	46
1885.	751	13,859	213	085	176,337	54	20	67	379,006	78	267,332	74	646,339	52
1886.	881	17,782	290	220	257,649	94	22	21	543,754	48	279,306	60	823,051	08
1887.	1,048	28,145	873	225	451,511	27	30	24	949,300	84	367,072	12	1,316,372	96
1888.	1,389	40,423	607	863	703,483	21	28	93	1,448,521	22	514,013	06	1,962,534	28
1889.	1,639	51,122	746	716	815,659	49	27	30	1,364,045	92	653,229	68	2,237,275	58
1890.	1,942	66,525	999	499	1,043,096	60	26	77	2,082,413	72	738,385	26	2,790,808	98
1891.	2,268	72,118	997	761	1,108,448	46	27	71	2,164,156	10	738,283	26	2,483,191	96
1892.	2,590	76,397	1,154	575	970,050	50	21	01	1,746,215	70	736,375	26	2,765,769	74
1893.	2,562	66,114	1,081	518	873,439	78	21	16	2,025,265	46	767,278	46	2,950,351	78
1894.	2,706	85,948	1,274	338	1,127,617	14	22	12	2,183,073	32	1,013,911	04	3,935,048	44
1895.	2,620	94,865	1,342	410	1,499,845	35	27	93	2,923,137	40	1,520,206	94	4,368,743	86
1896.	2,566	102,243	1,541	983	1,627,731	65	26	39	2,848,536	92	1,220,206	94	4,368,743	86
1897.	2,734	108,750	1,612	265	1,334,138	65	20	67	2,092,931	20	1,219,812	66	3,312,743	89
1898.	2,461	86,467	1,254	695	1,272,331	66	25	78	1,963,255	22	1,007,444	67	2,970,699	89
1899.	2,274	79,928	1,252	830	1,244,728	25	24	83	2,082,791	22	1,056,281	12	3,139,072	32
1900.	2,430	97,825	1,382	991	1,354,118	10	24	48	2,517,267	30	1,180,000	—	3,937,267	34
1901.	2,535	95,888	1,469	474	1,476,665	84	25	12	2,743,674	72	1,260,008	—	4,009,674	70
1902.	2,656	94,543	1,409	—	1,341,529	—	23	—	2,417,604	—	1,538,253	—	3,955,587	—
Total	—	—	—	—	18,948,775	91	—	—	35,224,315	88	16,062,768	94	51,287,084	82

THE DEVELOPMENT OF OUR MULBERRY TREES IN THE COUNTIES,
WHERE DISTRICT INSPECTORS WERE WORKING FROM 1880 TO 1902.

Year.	The Institute distributed		Plants to be planted.	The parishes planted out to their final places trees from their own nurseries.	Trees planted to their final places in the whole country.
	Mulberry seeds. Kilograms.	Number of 2-3 year old seedlings.			
1880 .	64	—	8,024	—	8,024
1881 .	1,233	—	6,634	11,778	18,412
1882 .	367 $\frac{1}{2}$	—	8,552	6,533	15,085
1883 .	179 $\frac{1}{2}$	—	5,640	38,415	44,055
1884 .	1,622 $\frac{3}{4}$	8,903	1,000	81,251	82,251
1885 .	1,393	43,850	3,021	76,841	79,862
1886 .	1,617 $\frac{1}{2}$	266,050	3,575	97,382	100,957
1887 .	766	107,810	5,870	119,661	125,531
1888 .	1,696 $\frac{3}{4}$	114,492	7,222	37,074	44,296
1889 .	712 $\frac{3}{4}$	126,150	18,504	50,272	68,776
1890 .	611 $\frac{1}{8}$	112,510	41,816	78,263	120,079
1891 .	457 $\frac{1}{2}$	140,380	38,108	98,032	136,140
1892 .	3,109	190,530	39,300	139,339	178,639
1893 .	2,022	290,952	33,310	111,138	144,448
1894 .	2,495 $\frac{1}{2}$	691,010	23,543	118,739	142,282
1895 .	3,653 $\frac{1}{2}$	592,007	29,515	118,830	148,345
1896 .	3,033	1,851,600	37,501	164,258	201,759
1897 .	3,407 $\frac{1}{2}$	5,231,169	23,788	187,555	211,343
1898 .	3,080 $\frac{1}{2}$	6,005,205	29,325	209,663	238,988
1899 .	3,498	8,692,138	59,014	220,655	279,669
1900 .	3,232 $\frac{1}{2}$	7,638,213	134,048	249,729	383,777
1901 .	3,350 $\frac{1}{2}$	8,970,595	69,843	236,749	306,592
1902 .	2,556 $\frac{3}{4}$	6,621,073	119,295	243,724	363,019
Total	44,159	47,694,737	746,448	2,695,881	3,442,329

PISCICULTURE.

The large extent of water in Hungary until the first half of the last century abounded in fish, the number of species being more than sixty, which all breed well in the different waters of the country.

In consequence of this abundance fish was in common

use and cheap as food, and fishing was a profitable business.

In the second half of the last century, however, water regulations on a large scale, reclamations from flood, the drying up of meadows and ponds, the constantly-increasing water communications, the works used to raise the water level to utilise the motor-power of water, and in some places the dust of the factories and sewage outlets were mainly responsible for stopping the natural increase of fish.

An Act of Parliament passed in 1888 established close times for some economically more important kinds of fish in certain periods, and prohibited the catching of fish under a certain size, and the use of certain obnoxious and destructive ways of fishing. Besides this the Act ordered in all those places where private proprietors could not utilise reasonably their fishing rights, the establishment of societies for utilising those rights, the aim of the Act being to make the fishing business as far as possible uniform in the larger territories.

The development of pisciculture, therefore, was indicated in two directions: in the first place by the promotion of fishing societies in public waters; secondly, by the promotion in private waters of pisciculture proper. The latter direction was certainly quicker, individual effort to promote private interests being more powerful than co-operation on public matters.

Activity on both lines was helped by the inspector of pisciculture, by advice and drafting of plans. To diffuse knowledge, the State distributed scholarships to educate pond managers; besides this, the Water Masters' School at Kassa has given lectures since 1899 on pisciculture, to make the young men, who would eventually take up fishing, useful to the farmers. In the same year, under material and intellectual help from the Department,

there was started a periodical under the title of *Haldszat* (fishing).

The Department distributed yearly an increasing number of fish eggs to re-populate our rivers; and since 1898 crabs also. There were distributed—

	Salmon.	Trout.		Crabs.
		Common.	Rainbow.	
1890 . . .	—	32,000	—	—
1891 . . .	1,000,000	28,000	—	—
1892 . . .	1,000,000	28,000	—	—
1893 . . .	2,500,000	427,000	—	—
1894 . . .	2,500,000	427,000	35,000	—
1895 . . .	12,000,000	650,000	200,000	—
1896 . . .	5,000,000	800,000	280,000	—
1897 . . .	20,000,000	850,000	370,000	—
1898 . . .	25,000,000	1,200,000	550,000	100,000
1899 . . .	35,000,000	1,300,000	771,000	156,000
1900 . . .	40,000,000	1,350,000	850,000	150,000
1901 . . .	42,370,000	1,440,000	1,000,000	148,000
1902 . . .	55,030,000	1,750,000	846,760	100,000

There is a growing interest both in the trout-breeding and the pond-farming amongst our proprietors, which is shown by the number of those rearing places and pond-farms, which were built on the advice and plans of the inspectors of the Department, and under their direction.

	Trout-rearing homes were built in places.	Pond-farms were started in places.	Extent in holds.
1895 . . .	7	4	432
1896 . . .	4	8	921
1897 . . .	8	6	340
1898 . . .	8	9	753
1899 . . .	3	14	1,371
1900	12	10	2,034
1901 . . .	4	6	1,375
1902 . . .	12	4	409

Including the pond-farms formerly started at the end of 1902, there were at fifty-three places pond-farms to an extent of 5,972 holds in regular business, and the regular breeding by rational pisciculture was introduced in

thirty-two places in an area of 4,558 holds. Incubating homes for trout amount to eighty-two.

Among the pond-farms the largest are on the estates of Tata, Nagyigmánd, Simontornya, Dunaadony, Bélye; and there is the Palics pond of the Municipality of Szabadka, all of which cover a larger area than 100 holds, and were started in the last few years.

The result of this development is that the fish from Bohemia have been driven out of the Hungarian market. The effect of exporting yearly the salmon fish eggs on open market was that this kind of fish increased to a great extent, and the imports showed a corresponding decrease; so we may expect an abolition of the import; and this is very much to be desired, because the salmon imported from Russia are of a much inferior quality, and are dangerous to the renown of the Hungarian salmon.

There is only one way to compete with the foreign, chiefly Roumanian import, viz., to offer at reasonable prices to the consumer, instead of the ice-kept and consequently frozen fish, our quite fresh local fish, and for this object to develop the pisciculture at home to a greater extent.

This is the aim of another branch of activity of the Department, to organise on the public rivers—in the first place on the Danube, Tisza, and thence on the smaller rivers—fishing societies. There were established in 1896–99—since that year forty-six more such societies—as follows:—

In 1896 . .	5	societies, the area of water being . .	15,670	holds.
„ 1897 . .	10	„ „ „ . .	29,278	„
„ 1898 . .	12	„ „ „ . .	42,589	„
„ 1899 . .	12	„ „ „ . .	12,307	„
„ 1900 . .	4	„ „ „ . .	3,452	„
„ 1901 . .	3	„ „ „ . .	1,995	„
„ 1902 . .	2	„ „ „ . .	1,946	„

Altogether there are at work now 57 societies with a water area of 254,172 holds, and we can regard the organised pisciculture as assured on the large water surface of our country.

VETERINARY ADMINISTRATION.

I.—*Veterinary Service.*

The veterinary service in the veterinary administration under sched. 138 and following the 7th Act of 1888 was provided up to 1899 by 98, and since 1900 by 104 nominated State veterinary officers. For this purpose the twenty-five municipal cities and the sixty-three counties were divided into sixty-two State veterinary districts, to each of which is appointed a veterinary officer, under the direct control of the Minister. There are also veterinary officers not engaged in particular district services, such as the veterinary officer at Kőbánya and Győr, as well as those at the import stations, or working directly at the Board. Besides these State veterinary officers, there were in 1896 782 veterinary surgeons in the country, viz., 194 county officers, 92 officers of municipal cities, 91 officers of boroughs, 77 officers of parishes, 152 officers of unions of parishes, and 176 private veterinary surgeons.

The total number of veterinary surgeons was unsatisfactory, still more the number of county (district) veterinary surgeons, since in 1896 only 197 surgeons were provided in 12,614 parishes of 410 districts for all the work to be done, and this number was utterly insufficient. This deficiency was still more aggravated by the fact that a considerable number of the appointments were left vacant in the remoter districts, owing to lack of co-operation.

The first object was to increase the number and the quality of the State veterinary officers. The veterinary college was raised in 1899 to academical degree, and admission to it was dependent on passing the final examination at a gymnasium or real school. This reconstruction will certainly have an important influence on the veterinary condition of the country, because veterinary surgeons educated in this manner, having higher qualifications, will carry out the work of veterinary service. To increase the number of pupils in the Veterinary Academy the Minister of Agriculture organised scholarships for the more successful students. The result was to improve the proportion in some degree between the number of districts and of veterinary surgeons, this proportion showing a veterinary surgeon to

	In 1895.	1896.	1897.	1898.	1899.	1900.
Districts . .	2·1	2·1	2·0	1·9	1·8	1·8
Parishes . .	69·2	64·7	62·8	53·3	56·6	55·0

But a radical change could only be expected by a uniform organisation throughout the whole country, and one corresponding to the actual necessities of the case.

And so, following those important economical and veterinary interests which depend on a duly organised veterinary service, the nationalisation of the veterinary service was introduced, and a Bill relating thereto, after a prolonged discussion by all the interested parties, was introduced and passed in the 17th Act of 1900, and put in working on the first day of 1901.

Under this Act altogether 641 State veterinary officers were organised.

The chief importance of the nationalisation of the veterinary service being in the nationalisation of the county and municipal veterinary officers, it is of the greatest interest to see what change in this direction has taken place from

the previous state of things, and how many more veterinary officers are now engaged in the work.

Municipal and parish veterinary officers, whose cooperation was not wanted in the administration, and whose work was much more directed to local requirements, which were left intact by the 17th Act of 1900, cannot be reckoned in this respect. The municipalities and counties employed before the nationalisation of the system altogether 377 veterinary officers; in the third year after nationalisation there were organised 66 county, 436 district, and 58 borough, or, altogether, 560 veterinary officers. Thus it is apparent that at the end of 1902 there were 183 more veterinary officers in service than before, and the number of parishes to each veterinary officer had decreased to 25.

The number of veterinary surgeons for live stock was, on the average all over the country before the nationalisation, one to 26,000 large beasts (horses and cattle), but after nationalisation one to 15,000 large beasts (horses and cattle).

The veterinary State officers take charge of, besides the work connected with the veterinary police, the education of smiths at their residences. The Minister of Agriculture organised for smiths belonging to a guild, and apprentices who were twenty years old, and at least two years in work in different parts of the country, courses of instruction in shoeing, which increased in number every year.

Admission to these courses is granted by the county's veterinary officer, who takes control. The number of pupils for each course is 25-50. Non-resident pupils receive during their instruction one crown per diem and their travelling expenses. Priority is granted to those domiciled in the county where the course is organised. The course lasts from three to six months. At the end

examinations are held, and successful candidates receive a diploma. The courses are controlled by the Veterinary State Inspector.

The duty of the State veterinary officer is chiefly to provide the veterinary administration ; to supply the need of sanitary conditions for cattle is the duty of the parishes and their experts. But the Minister of Agriculture, being empowered under the Act, at any place, where it is necessary in the interests of the public administration, to give permission, at the request of the local authorities, to the State veterinary officers to temporarily provide the local requirements, gave permission, partly temporarily, partly permanently, to 331 State veterinary officers to provide for local requirements, so as to complete as much as possible the veterinary service.

II.—*Trade in Live Stock.*

In the regulation for the trade in live stock the leading principle was always to avoid troubling the internal trade to any further extent than was necessary for the prevention of contagious diseases and to regulate the reciprocal trade with foreign countries in such a manner as to secure thorough safeguards in the import of live stock, and to assure the possibility of the export of live stock to the western countries' markets, and for this purpose to strengthen the confidence of foreign countries by the organisation and development of the veterinary service, and to mitigate in the foreign countries the rigorous sanitary measures dealing with the import of our live stock.

The more important measures taken in the last seven years for the regulation of the trade in live stock and for furthering export, were as follows.

The most important market for the export of our live

stock is Austria, which receives the greater portion of our export in live stock and animal produce. But Austria, because of the foot-and-mouth disease, as well as of tuberculosis, issued stringent regulations hampering our export, which caused considerable loss, principally to the western counties. Sometimes it made the export from whole counties absolutely impossible; sometimes the export was bound down to special permits given casually; sometimes the local government authorities of certain Austrian provinces prohibited the import from the whole of the Hungarian territory, or authorised the import only to slaughter-houses where the imported animals were to be slaughtered. One of the principal difficulties arose from the fact that some of the Austrian local authorities were empowered to issue orders regulating the Hungarian live stock import, and so the conditions of the import varied according to each Austrian province.

The measures taken by the Austrian Government in 1896, permitting the import of cattle from the territories under control because of the foot-and-mouth disease to the quarantine market at Vienna, had no considerable effect on the export.

In the same manner the regulations against the import of swine which were issued by the Austrian Home Office because of swine fever were very stringent. Whole counties came under the ban, so that in a short time the swine export was practically prohibited from the districts richest in pigs. Later, permission was given to send pigs from the infected counties, also to some of the Vienna butchers, and still later, in 1896, permission was given by means of special applications from the infected territories for animals to be sent not only to the Vienna slaughter-houses, but also to the free market, and yet later some concessions were given for the healthy farm-

yards of the infected villages to send fat pigs to the Vienna free market. The export of pigs suddenly decreased, partly on account of these difficulties, partly through the considerable decrease of the stock itself.

Whilst suffering from these severe experiences, we were obliged to make the mutual regulations with Austria in the renewal of the commercial union. These regulations, which came into force on 23rd of September, 1899, assure freedom of commerce to the mutual trade in live stock between Hungary and Austria. Their principal aim is to declare, that regarding the trade in live stock neither of the contracting parties can apply towards animals coming from each other more stringent regulations than those applied in similar circumstances to the inland trade—viz., the animals from the contracting State have the identical regulations with the inland producer. For the trade in live stock from Hungary to Austria and from Austria to Hungary, it is stipulated, that the absolute freedom from contagious diseases during forty days preceding the certificate of the original and neighbouring villages must be certified. The principal advantage of these regulations is, that firstly, according to these regulations, the right to issue orders is no longer in the hands of the local authorities, but in the hands of the Austrian Home Office; and secondly, that in the case of any contagious disease, except Oriental rinderpest, preventive orders cannot be issued except against the immediately neighbouring Hungarian or Austrian districts, and in the case of the introduction of contagious diseases the orders cannot be extended to a further limit than the district of the place of origin and the neighbouring districts, not being further away than ten kilometres, and this protection is to be ended at once when the contagious disease is declared as extinguished. Those territories of

cities or parishes whose area exceeds 350 square kilometres were to be reduced in size, and this was done in some cases.

To protect in a more effective manner the interests of the Hungarian live stock dealers, the Hungarian Minister of Agriculture has appointed since 1902 a Vienna veterinary inspector, whose services are in frequent request.

After Austria, the German markets are the more important for the live stock export. Simultaneously with the commercial treaty concluded in 1891, a veterinary convention was arranged with Germany by the 5th Act of 1892, which, in force since 1893, has opened the German market for live stock and animal produce.

The hopes derived from this convention were, however, almost destroyed, because the import of pigs was allowed only from Kőbánya, the import of cattle only to certain German slaughter-houses, and the import of sheep still further prohibited. After the appearance of the swine fever in 1895 the import of pigs to Germany was absolutely prohibited, and since that time we have not been successful in securing the import either of pigs or of sheep, cattle only being admitted to certain special slaughter-houses.

The number of these German slaughter-houses to which Hungarian cattle are admitted has been increased in later years, and since 1901 permission has been given to import into Germany slaughtered pigs, and this has steadily increased.

New regulations have been issued by Germany dealing with the importation of meat, and have been in force, partly, since 1903.

To secure veterinary control over the live stock carried to foreign countries, or to Austria from Hungary, before

passing the frontier in the railway carriages, and so control the prompt arranging of permits, and in this manner to prohibit, as far as possible, the export of unhealthy or suspicious animals, and to control the regular handling of their permits, the Minister of Agriculture organised on the western frontiers at the railway station, in 1900, veterinary controllers. This service being carried out without charge, traders are not burdened by it, and by detaining on the frontier unhealthy or suspicious animals, and issuing proper permits, much valuable help is given the traders in saving them from further difficulties. This was a powerful instrument for securing permanently the free export of cattle to Austria.

The conveyance of racehorses on railways between Hungary and Austria received in 1902 further advantages by the regulation that horses, if they are provided with a certificate from a club and veterinary officers, can be carried from healthy yards in a prohibited village without special permission to the other State.

For poultry export there is an effective prevention against poultry cholera absolutely necessary, and the Minister of Agriculture issued an order in the spring of 1903, the consequences of which will, it is hoped, avoid any preventive measures from Germany.

III.—*Contagious Diseases.*

The last seven years witnessed a prolonged and continuous struggle with contagious diseases, which resulted in the absolute extinction of one of them—tuberculosis—and the narrowed limit and extent of the others.

The Minister of Agriculture published two popularly-written pamphlets lately to diffuse knowledge of the prevention of contagious diseases, one giving advice in

cases of swine fever, the other in cases of foot-and-mouth disease. Both pamphlets were circulated to the number of nearly 20,000 copies each free all over the country.

The extinction of tuberculosis commenced in 1892, and was followed up in an energetic manner, the 2nd Act of 1893 empowering the slaughter of suspicious animals. By acting on a regular system in the defence works since 1894, and the Exchequer giving under the 10th Act of 1897 full compensation for suspicious animals slaughtered, it was possible to get at the very root of the evil, and to continuously limit its scope, so that it was possible to declare this disease wholly extinguished throughout the entire country in 1899.

The inhabitants of the infected districts were obliged to notify at once all suspected cases, and the compensation given promptly and justly, and the systematic application of preventive methods, excluded further inroads of the disease.

The extent of the disease since the application of this method of suppression, and the cost of it, are shown in the following table :—

TUBERCULOSIS.

Year.	Number of infected yards.	Number of animals.						The compensation paid by the Exchequer in	
		Diseased.	Dead.	Locally diseased.	Slaughtered on suspicion.	Slaughtered in slaughter-houses.	Altogether.		
1892	906	773	54	719	209	4,973	5,955	374,715	01
1893	1,795	2,352	63	2,289	426	8,698	11,476	576,215	90
1894	1,902	2,356	18	2,356	1,030	17,538	20,942	902,832	46
1902	—	—	—	—	83	—	83	5,842	—
1903 until the end of Oct. .	—	—	—	—	35	—	35	3,215	—

The foot-and-mouth disease has been almost permanent during the last seven years, but has been much minimised by stringent regulations. It spread over a wider area, however, in 1903, this being the natural consequence of the fact that those animals which did not have it are more exposed to its attacks. During the last years cases of foot-and-mouth disease being comparatively rare, the whole live stock of the country was much more exposed to this very contagious disease.

Necessary measures were still taken to assure the possibility of export of live stock, in spite of the increase of this disease.

Anthrax, without being a contagious disease, was present almost in a permanent proportion during this period.

In places where the appearance of this disease is practically permanent, a method of dipping is adopted, and experience showing the minimising results of the dipping, there are now dipped on an average each year 150,000 cattle, 8,000 horses, and 200,000 sheep.

To restrict rabies the local bodies issued bye-laws on the keeping of dogs, and introduced special taxes on dogs, to control the increase of superfluous dogs, the revenue from this source being utilised in the first place to cover the expenses connected with veterinary work, and secondly with stock-breeding and sanitary purposes.

In order to extinguish glanders, the use of mallein for testing, and the dipping to make a reliable diagnosis, were regulated in 1896, these methods being used generally in 1897 in the increased number of cases of this disease in the counties of Torontal, Bacsbodrog, Szabolcs and Veszprèm; in 1898 new regulations were issued against glanders, the principal object being to test as soon as possible the presence of the disease, or infection, by mallein-dipping, to isolate the cases, and to slaughter

wherever necessary. By these means it was possible to lessen the limit of the sixty days' quarantine, and to cancel it sooner.

The extent of the disease has consequently decreased.

The swine purple was considered by farmers in the first half of the last decade to be the most dangerous of the swine diseases, claiming a yearly sacrifice of 20,000–30,000. Dipping being very successful, each year 500,000–600,000 pigs are dipped for swine purple; since the appearance of the swine fever, however, each year a smaller number of pigs are dipped for swine purple; perhaps the consequence of this fact is the greater increase of cases of purple in the last three years.

Swine fever was almost unknown in the country until 1895, when it spread rapidly in the spring, and made huge havoc amongst the swine stock in large districts. To check its increase the hawking of pigs was prohibited, the infected villages scheduled, diseased and suspicious animals isolated. At the same time, in interest of the feeding of Budapest and of the marketing of infected stock, permission was given for healthy animals to be carried from infected yards to the cattle market at Budapest for local consumption. The regulations against spreading of the disease were maintained in 1896, and some new supplementary bye-laws were issued. When, however, the disease decreased both in extent and gravity in 1898 the Government was induced to alter certain stringent regulations, which were absolutely necessary to gain the confidence of the export markets. The regulations were exactly the same for both markets under Government control at Kőbánya and Győr. In 1903, however, the veterinary office at Győr was suspended following the demand of the market, and the farmyard for fattening of pigs at Barcs, owned by a limited society, was brought

under permanent veterinary control, being declared a special farmyard for pig export to Austria.

The Minister of Agriculture organised in 1898 all the defence work against swine fever to be carried out by public bodies according to experience and actual circumstances, at the same time allowing the carriage from the fattening farmyards which were under public control, and free from disease, of all the pigs domiciled there at least thirty days, and weighing at least 100 kilograms each, to Kőbánya and Győr, without quarantine. The time for observation was reduced from thirty to ten days for all those pigs which came from non-infected areas, the control for expeditious purposes being entrusted to veterinary officers; indeed, from the communities of a larger area the carriage was allowed, and if from any other, from the uninfected part of it; of course, in this case the time for observation was not reduced from the thirty days. It was possible by these measures to partly bring the local fattening farmyards up to the level of the farmyards under direct State control, and partly to give facilities for those farmers whose farms were in the areas of some large communities, and were formerly excluded from marketing.

IV.—*Cattle Markets and Slaughter-houses.*

Cattle markets are held, by Royal charters and later by Government permits, in connection with the fairs and weekly markets. The 7th Act of 1888 allows cattle markets to be held only at fixed and properly equipped places, and with the attendance of qualified veterinary surgeons.

Through the influence of this Act those having rights for markets supplied the many requirements in fitting

and equipping the market-places, and in this direction there is continued progress.

Under the same Act, every community having a considerable consumption of meat is obliged to build and keep a slaughter-house satisfactory to sanitary and veterinary requirements. In late years much real progress has been made in this respect, most of the larger boroughs building new slaughter-houses, including those for pigs, or transforming their older ones. In smaller communities, however, the realisation of this aim is slow, because of the unfavourable financial circumstances.

For burying in a manner excluding any infection of the carcasses, the different methods used abroad to annihilate or use the carcasses were studied. Although all such studies are still in the region of experiment, there is a considerable amount of plant in use. These implements were successively recommended by the Minister of Agriculture to the local bodies, and an improvement is hoped for, and by utilising the carcasses absolutely useless at the present time to give new profits to the agriculturist. The municipality of Budapest has ordered already a plant for using carcasses; this example will be followed certainly by other local bodies.

THE VETERINARY COLLEGE.

The Veterinary College, founded as a Veterinary Chair at the University in 1787, made independent in 1857, was reorganised as a Veterinary Academy in 1890.

The cause of veterinary education made great progress during the scholastic year of 1898-99, when the Veterinary Academy received by a Royal warrant, dated 11th of February, 1899, an academic organisation, by which the

admission to the Veterinary College was made dependent on a final examination of a certified real-school or a gymnasium. The reform will have a salutary influence on the quality and results of the instruction given, as well as on the veterinary circumstances of the country, since the veterinary service will be the duty of well educated and thoroughly qualified men. That the hopes connected with the higher tests of admission were fulfilled, is shown by the great increase of admissions in the scholastic year 1903-04; the college, and through the college the veterinary service of men, being supplied by yearly increasing numbers, all of whom have successfully passed through the preliminary education. Parallel with the progress of the college, the rector and four of the eight ordinary professors were promoted to the higher (fourth) class of stipend.

The aim of the college is to give certificates to young men for veterinary work, after proper qualification; to give expert opinion in the highest questions of veterinary cases; to foster the veterinary science; and at the request of public administrative or judicial bodies, to deliver expert opinions.

The regulations of the Veterinary College do not show much alteration in the syllabus found satisfactory during the last decade; the alterations dealing more with the preliminary education of the pupils and the position of the college itself.

To the courses, which are extended to eight 6 months' terms, from the scholastic year of 1901-02, only those young men are admitted who passed the final examination of real or gymnasial schools. Those pupils who had first-class diplomas from agricultural colleges or agricultural academies, as well as from apothecaries' schools, or M.D.'s, are entitled to shorter courses.

The syllabus, which is practically permanent, lays principal stress on the practical work of the instruction, and so the pupils of the third and fourth years in classes of six, alternatively pass one week on the Crown estate of Gödöllő, where under the guidance of a State veterinary officer they are instructed in the practice of cattle breeding and cattle doctoring.

The orders of the examinations at the college are as follows:—

Preliminary examination: at the end of the second half year's term. Objects: botany, physics, chemistry and forging.

First examination at the end of the fourth semester. Objects: anatomy, physiology and dermatology, pharmacology, general pathology and parasitology.

Second examination at the end of the course. Objects: pathological anatomy, pathology, surgery and operations, breeding of cattle.

Third examination. Objects: contagious diseases, control of meat, breeding, judicial veterinary, organisation of administration and veterinary police.

The certificates are issued in Latin.

At the head of the college is the rector; the instruction is provided by eight ordinary, two extraordinary, three sub-professors and fourteen assistants. The numbers of pupils were:—

School years	1899—								
	1895-6.	1896-7.	1897-8.	1898-9.	1900.	1900-1.	1901-2.	1902-3.	1903-4.
Altogether . .	316	379	382	731	497	369	317	333	428
Of these those of the 1st year	143	151	151	155	204	86	64	109	190

In order to secure the necessary number of experts for the veterinary service, the Minister of Agriculture has organised besides the existing small number of scholarships, since 1899 more scholarships, and for those having

higher and better preliminary education, of higher values. Scholarships were given :—

In the school years of 1899–1900	to	58	pupils,	value of	24,800	crowns.
„ „	1900–1	„	73	„ „	31,750	„
„ „	1901–2	„	89	„ „	41,650	„
„ „	1902–3	„	110	„ „	57,125	„
„ „	1903–4	„	109	„ „	60,300	„

Besides all these courses there is organised in the Veterinary College a forge for military forging surgeons, the course lasting two years. And lastly, there has been organised, chiefly for military farriers, two courses each year for shoeing, each lasting six months.

In the hospitals of the Veterinary College there are under treatment yearly some thousands of domestic animals.

HORSE-BREEDING.

The development of a reliable method and the general encouragement of horse-breeding is of national interest, and as much from the agricultural as from the military point of view. To this reason is chiefly to be attributed, that amongst all the branches of the breeding of live stock, horse-breeding received earlier the organising and encouraging influence of the State, and one can truly say, that there is no State up to the present time where horse-breeding has received so much encouragement from the Legislature, and where the Government has given so much and such varied help to horse-breeding, as in our country.

Acknowledging the value of horse-breeding, the Government greatly developed, principally in the last few years, the State studs; it increased the number of mares in every stud, increased the number of State studs by

organising economically bred studs, and organised the foal-yards at Bukin-Palanka, to rear stallion foals bought from the breeders. Besides this the number of stallions was increased, new farm-yards were organised, and the yards were separated according to modern requirements, &c. Small farmers were largely subsidised in horse-breeding.

To these measures it is due that the Hungarian horse, in spite of the altered agricultural conditions, has kept its world renown. The principal inducement for the large amount of State encouragement given to horse-breeding was the fact that the numerous wars of the preceding hundred years had effected too much destruction in the stock of horses, and our own breeding was unable to produce the stock necessary both in quantity and quality for military purposes. To deal with this difficulty, in the first place the military Government undertook horse-breeding, and by starting studs and yards was anxious to supply the horse-breeders of the country with stallions of good quality and of sufficient number, and so we were able not only to supply the increased requirements of our army, but also develop greatly our export. This also remained the aim of the State when, after the revision of the constitution, the cause of horse-breeding was entrusted to the Hungarian Government. The military organisation was maintained only to the extent that the indirect keeping and control of the studs were entrusted to military persons, which were handed over by the War Office to the Minister of Agriculture, except the studs at Gödöllő and Kolozs, where the whole administration is absolutely civil.

The stallions necessary for this purpose are bred partly at the State studs (at Kisbèr, Bâbolna, Mezöhegyes, Fogaras, Kolozs, and Gödöllő), and partly bought from private breeders. The breeds are at Kisbèr the English, at Bâbolna the Arabian. Mezöhegyes breeds by crossing

with the English a fixed kind of half-breed suitable to Hungarian requirements, and of late years Fogaras has bred horses satisfying the requirements of the colder, harder climates in mountain districts, principally from Lipican breed. Besides these the Minister of Agriculture in 1897 founded at Gödöllő the "Small Nonius"¹ stud, and at Kolozs in 1899 the Half-English bred stud. These two last studs are managed on the farms without any military assistance, as previously stated.

The superfluous mares in the stud are sold at public auctions, and the stallions are registered at 3½ years of age, in the stock of the four State studs (Szèkesfejérvàr, Nagy-Körös, Debreczen, and Sepsi-Szent György) for the purposes of public breeding. To each stud is adjoined a stud district, to Szèkesfejérvàr the western, to Nagy-Körös the southern, to Debreczen the northern, and to Sepsi Szent György the eastern counties. Each district is divided into stud classes. The stud at Szèkesfejérvàr comprises the classes of Szèkesfejérvàr, Bàbolna, Nyitra, Nagyatàd, and Palin; the stud of Nagy-Körös the classes of Nagy-Körös, Verseez, Bèkèscsaba, Baja, and Dorozsma; the stud of Debreczen the classes of Debreczen, Eperjes, Turjaremete, Rimaszombat, Szatmárnèmeti, and Jászberény; the stud at Sepsi Szent György the classes of Sepsi-szent-György, Homoròd, and Dèès.

The stallions from private breeders are acquired in three methods: (1) by buying foals of one year old, which are kept until they are 3½ years at the foal farm at Bukin-Palanka; (2) by buying fully developed stallions; and (3) by an agreement made with about 70 superior private farmers, who breed the foals and hand them over when three years old.

The Minister of Agriculture is anxious to promote the

¹ The "Large Nonius" and "Little Nonius" are Anglo-Norman bred.

general improvement of the horse-breeding regulated in this manner, and for this reason, from time to time full-bred English and full-bred Arabian stallions and mares are bought in England and in Arabia respectively. Thus was purchased the full-bred English stallion, Bona Vista, for 400,000 crowns, in 1898 in England; and an expedition sent in the autumn of 1901 to Arabia imported some full-bred Arabian stallions; and in 1903 the English full-bred stallion, Not Out, was bought for 28,756 crowns.

The development of the horse-breeding of the country is served by the measure, that, besides their own stallions, some parishes can have on certain conditions, on favourable terms, and sometimes quite free, stallions for service from the State. The Government aids the horse shows, horse competitions, the starting of common foal pastures, and clubs for racing. Under those circumstances the home supply required for war purposes in time of mobilisation is ample.

The numbers of service places and of stud stallions are shown by the table following:—

Year.	Stations of service.		Number of hired Stallions.	Total number of State-stallions.
	Number.	Number of stallions.		
1895	918	2,564	247	2,811
1903	954	3,017	186	3,203

Notwithstanding the fact that there are more than 3,200 State stallions for horse-breeding, and this number is certainly more than that of any other State, the Minister of Agriculture took great care, in the last few years, that single communities, principally those which are not supplied with stud stations, should acquire stallions in common, and their aim in this direction is promoted by the Minister. Common stallions are given to the villages, either at a relatively very favourable price (600—800 cr.) to be paid in three yearly instalments, or

to poor villages absolutely free ; but in both cases it is agreed that those stallions bought on the three-yearly instalment system only after the third year and after the whole price being paid, those given free only after the fifth year, shall become the property of the village, and until this term the stallion is to be used for breeding purposes, duly treated and controlled by the State officers.

So were given by the Minister of Agriculture to the villages, stallions—

1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
24	31	77	85	131	132	122	111	110
(7 free.) (23 free.) (6 free.) (the whole list not complete.)								

This number being still insufficient to satisfy the demands of common breeding, there are more than 2,000 registered private stallions for service.

The control and certifying of those private stallions used for service under schedule 29 of the 12th Act of 1894 is already in general working throughout the country.

Such private stallions were registered as fit for service since the working of the Act in—

1898.	1899.	1900.	1901.	1902.	1903.
2,106	2,287	2,261	2,144	2,290	2,322

Notwithstanding this fact, the number of stallions controlled under the Act on Agricultural Police is not satisfactory in all counties in proportion to the mares, due not only to the fact that the keeping of stallions was not obligatory until 1904, but also to the fact that some poorer villages make every endeavour to save themselves the expenses of stallion-keeping. So it is evidently necessary to increase still further the number of serviceable stallions, in spite of the fact that the stock of horses is developing both numerically, and in quality. The live-stock census of 1884 found only 1,749,302 horses

in the country, and the census of 1895 registered already 1,972,930 horses.

Our export in late years in numbers was as follows:—

1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903. (up to Sept.)
32,130	39,077	41,401	36,320	39,416	54,759	45,758	47,705	33,261

It is a matter of congratulation that the attention of foreign countries is drawn not only to the horses for ordinary use, but also that they buy from us a large quantity of mares, stallions, and foals for breeding purposes, and that this increasing export has not affected at all the supply of horses for the army, which can always be very easily supplied.

All these facts permit the deduction that our duty is to develop our stock in horses on the lines already followed, and we are able, in the increasing interest in Arabian full-bred horses, to show not only the considerable progress made in later years in the stud at Bábolna, but at the same time the very valuable material contained therein, which was completed by the eight original Arabian full-blood stallions bought by the expedition of 1897 from Arabia, as well as by the four full-blood stallions and nine full-blood mares bought by the expedition of 1902 from Arabia.

The breeding districts mentioned in the 12th Act of 1894 are, as regards horses, not yet settled. The reason of this is, that it was absolutely necessary to make preliminary experiments so as not to disturb the horse-breeding in those districts.

These experiments are almost finished. The answers given under schedule 29 of the aforesaid Act by the municipalities of the country as to the establishing of these breeding districts, as well as by the chairmen of the

municipal and county horse-breeding communities, and of the four stud authorities, based on local circumstances and practical requirements, were discussed at conferences held in four different parts of the country, viz., at Győr, Debreczen, Szeged, and Kolozsvár in 1903. This important question of establishing the breeding districts will shortly be decided, and will insure the further progress of the horse-breeding on the lines followed up to the present time.

STUD FARMS AND THE CROWN FARM AT GÖDÖLLÖ.

At Mezőhegyes, Bábolna, Kisbér, and Fogaras, simultaneously with the founding of State studs, there were also organised farms with the one object of supplying fodder to the studs. Since, however, the studs came under the management of the State, the farming was separated from the management of the stud, and the aim of the farms is not only to produce the necessary fodder to keep the stock in the best condition, but besides this principal object their further aim is to produce the utmost possible revenue, so as to cover as much as possible the expenses of State horse-breeding. Indeed, besides the plan drawn up with this double object, these farms are called upon to serve the purpose of educating in the most modern and approved methods of farming and breeding, farmers who increase in number each year in their visits, and further to help the industry of agriculture in a wider sphere by distributing breeding-stocks, seeds, vine-stocks, and fruit trees of a superior quality.

The same objects are held in view, except the breeding of studs, by the farming on the Crown farms at Gödöllő; this was taken over under the same management as the stud farms in 1895.

The Minister of Agriculture organised in 1900 the foal farm at Bukin-Palánka on a State farm taken over from the forestry section who exchanged 1,000 holds for the purpose with the Bukin farmers.

The extent of these farms is 70,573 holds ; their value, including the live-stock and implements, at the end of 1895 was 40,087,882 crowns, and increased by the end of 1901 to 47,442,202 crowns.

FARMING.

The farms of the stud farms and Crown lands at Gödöllő are divided according to cultivation, in holds, as follows:—

	Arable land.	Meadows.	Pastures.	Gardens.	Vineyards.	Forest.	Willows.	Yards, roads, ditches.	Ponds and water.	Railway.	Fallow.	Lease.	Altogether.
Kisbér . .	6,355	640	413	58	44	3,178	2	142	23	—	415	18	11,288
Bábolna . .	5,536	112	259	23	10	715	—	387	—	—	62	2	7,106
Mezőhegyes	23,939	554	1,736	184	2	1,456	—	1,094	106	39	12	68	30,090
Fogarás . .	3,682	755	1,904	—	—	354	1	169	—	13	205	806	7,889
Gödöllő . .	6,838	760	2,267	39	82	266	—	398	5	—	52	25	10,727
Bukin Palánka .	2,245	—	—	—	—	1,054	—	174	—	—	—	—	3,473
Total .	48,590	2,821	6,579	304	138	7,023	3	3,264	134	52	746	919	70,578

Each year the farming is conducted on a more intensive method, and generally in a more intensive manner than on the private farms in the same districts under the same circumstances. Owing to the large quantity of live-stock, supplemented by bought farmyard manure, there is

sufficient manure to fertilise the arable land on an average every four to six years, eventually in shorter periods. This is supplemented yearly by fifty-five wagons of artificial fertilisers, and by the permanent production of compost. Besides this, the farms being supplied by draught power and labour, implements and machines, in economical but effective manner, applying a rotation corresponding to the circumstances, the cultivation is satisfactory; the fallow system, as well as ploughing deep in autumn the spring seeds, at Mezöhegyes sugar-beetroot cultivation on a large scale, at Kisdér potato-growing for industrial purposes, and ample hoeing work add to the required quality of cultivation.

To supply the live stock with fodder on the farms at Mezöhegyes, Bábolna, Kisdér, and Bukin-Palánka, the ordinary meadows and pastures were supplanted by the more expensive but, under dry climate, surer and more productive sown seeds. These as well as the meadows and pastures are cultivated by digging, and from time to time manuring with compost. Suitable spots are used, as irrigated meadows.

The cultivation of crops used to a large extent on arable land gives the required alternation in the rotation, and supplies protection from the evils connected with one-sided cultivation.

Against the larger fluctuations of the revenue there is a further safeguard; that, wherever possible, besides corn, other cereals, &c., are cultivated. So at Mezöhegyes, among the crops to be marketed, the first place is taken by the wheat, occupying yearly on the average 4,500 holds; but, besides this, 2,600 holds are given to sugar-beetroot, the same quantity to maize, and a further 1,300 holds to hemp. At Bukin also the cultivation of hemp was started, which is to be developed gradually to 300

holds. The plant-growing, if divided up in proper proportions, and the industrial plant, have also a good effect indirectly on corn, because, in the first place, of the ploughing by steam-plough (paid by the sugar-beetroot), the required hoeing, artificial manure, the weed-extinguishing capacity of the hemp, on the other side the copious quantity of pulp and the using of malt for fodder, are indirectly all beneficial to the corn-growing. To this fact it is owing that the crops of the farms are much larger than the average in the country, and corn-growing, in spite of the low prices, is still rendered lucrative; in its best years the results are really unparalleled in our country.

If in smaller proportion, yet the same results are produced at Kisbér (on 700 holds) and at Bábolna (on 250 holds) by the potato, grown on the farms for the starch factory of Kisbérfüzitő, from which they receive back 40 per cent. of potato offals.

Fogaras has since 1898 experimented with hop-growing, and this being successful there, equally as in any other of the neighbouring counties, has increased to 16 holds, and in 1902 started in 10 holds with the flax-growing.

The stud farms have been engaged since 1900 in experimenting to produce sugar-beetroot and seeds of beetroot for fodder, because our country is buying still the greater part of the required seeds from abroad, and the money paid for them is yearly about 2 million crowns.

LIVE-STOCK BREEDING.

One important branch of the farming on the stud farms and Crown lands at Gödöllő is the live-stock breeding and keeping, and this not exclusively from the financial point of view, but at the same time to produce serviceable breeding stock in the kinds bred on the farms for the use of common breeding.

The most important kind of live-stock breeding, as much from the financial as from the public utility point of view, is cattle- and pig-breeding.

Cattle-breeding is carried out at the stud farm at Kisbér by the Simmenthal and Bonyhád breed (this latter also in Simmenthal direction), at the stud farm at Bábolna by pure-bred Simmenthal, at the stud farm at Mezöhegyes by the crossing of Simmenthal and Kuhland and pure Hungarian cattle, at the stud farm at Fogaras by Pinzgau, at the Crown lands at Gödöllő by Pinzgau and Innthal, besides this the Fogaras stud farm keeps also a herd of buffaloes.

Pig-breeding was started only in last year at Bábolna and Gödöllő, and the stock still requires supplementing.

Both of these estates and the stud farms at Mezöhegyes and Fogaras breed the white Mongolian breed, the stud farm at Kisbér the Berkshire breed of pigs.

Sheep and horse-breeding are of minor importance compared with cattle and pig-breeding; the former concerns the value of pastures and fodder materials, which cannot be made valuable otherwise; the latter intends to supply the draught horses from the mares used on the farms. The Crown lands at Gödöllő and the stud farm at Kolozs are exceptions, where not only the draught mares are used for breeding, but a whole stud is kept.

Besides these there was organised a foal yard at Bukin-Palánka to contain the yearlings bought from private breeders, and here the first batch was placed in the spring of 1902.

In the forming of the stud farms importance is given to fattening for profitable purposes and also for the improvement of the soil. Not only the aged cattle and draught oxen are fattened, but also Western bred oxen bought specially for this purpose, and boars and rams disqualified for breeding purposes and sheep, but only when the cir-

cumstances of market made it desirable to sell the animals in a fattened condition.

OTHER PUBLIC ADVANTAGES OF THESE FARMS.

The stud farms and the Crown lands at Gödöllő have been at the service of the Minister of Agriculture for some time, for using the better qualities of the stock bred there for the improvement of the live stock of the country.

These farms send out yearly an increasing number of animals to the communities of the country, as is shown in the following table :—

	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Stallions . . .	8	7	4	11	—	—	6	6
Bulls { Hungarian bred . . .	52	73	72	47	67	49	61	36
{ Western-bred . . .	149	182	200	246	236	201	187	269
{ Buffalos . . .	6	15	—	12	14	16	18	25
Cows and heifers { Hungarian-bred	39	47	45	40	58	41	58	21
{ Western-bred . . .	35	31	23	35	26	64	10	34
{ Buffalos . . .	4	—	11	—	—	1	—	—
Rams	7	11	24	36	80	119	38	69
Sheep	—	—	—	—	10	50	—	—
Boars	216	470	367	500	704	713	724	797
Sows	82	30	187	90	39	216	44	196

Particularly since the ravage of the swine fever many boars have been sold to the communities, to replenish their diminished stock.

To improve the quality of corn produce on the medium and smaller size farms, the State farms have sold seeds of an excellent quality since 1896 at the current prices to the farmers, and to effect a wider distribution of these good seeds amongst the smaller farmers; a single proprietor cannot buy more of one kind of corn in the same year than ten tons, of other seeds more than one ton.

The State farms have distributed up to the present the following quantities of seeds to farmers in meter-centers.

	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Wheat . . .	7,112	11,558.31	16,364.35	10,274.50	4,474	9,027	8,835
Rye . . .	471	1,236.10	2,713.50	210	243	540	740
Barley . . .	120	105	2,640.70	398	315	431	240
Oats . . .	63	—	659	75	—	—	109
Maize . . .	106	—	306.80	48	13	84	43
Millet grass . . .	101	—	403.75	88	—	66	64
Autumn peas . . .	55	276.25	662.42	346	400	165	906
Spring peas . . .	3	—	188.70	175	—	542	93
Red clover . . .	13	—	1	1.80	—	33	4
Buckwheat . . .	—	—	75.75	5	—	—	—
Millet . . .	—	—	—	—	—	—	23
Hempseed . . .	—	—	1.39	12	—	70	—
Guinea grass . . .	—	—	3.20	—	—	—	—
Lucerne seed . . .	—	—	92.78	1 40	—	20	50
Grass seed . . .	—	—	133.07	315.50	23.46	8	98
Potatoes . . .	—	—	972.27	—	—	—	—
Beetroot seed . . .	—	—	29.59	74 40	1.18	135	197
Sainfoin . . .	—	—	—	—	—	—	24

The good implements, good live stock, and good cultivation of the stud farms is a reliable means of educating and improving the farmers. On this account the agricultural societies have organised since 1899 excursions to the State stud farms, which are, in consequence, visited by thousands of small farmers yearly.

The Crown lands of Gödöllő by their situation, close to Budapest, serve the purpose of model farms for certain kinds of smaller agricultural cultivation. The Minister of Agriculture organised there in 1898 a poultry farm, in 1899 a State bee farm, in 1901 a State tree nursery. The poultry farm, the bee farm, and the dairy farm at Szentgyörgy are connected with a technical school for farm labourers. Besides this the pupils of the third and fourth year courses of the veterinary college receive some practical instruction on the Crown lands at Gödöllő in live stock breeding and curing, and for this purpose weekly, changing in batches of six, they are boarded at the farms of the estates.

STATE FARMS AND SPAS.

I. *State farms.*

When the Department for Agriculture was organised by the 18th Act of 1889, only those of the State farms were placed under its control, which were either intended for colonisation, or were exempted from selling because of some important public reasons. In the year 1899, however, all State farms were handed over to the Department. These estates are now managed at Arad by ten State-appointed stewards, and have an extent of 86,334 holds, the territory being used partly for colonisation, partly let on lease. Of this territory, there remain on the one side—because of the legal suits arising from the disordered relations of proprietorship, on the other because of the territories given for the purpose of colonisation, and on account of some territories used in other ways—only 59,518 holds, which are let. There are two farms leased at Gyirok 902 $\frac{197}{1800}$, and at Jezvin 1,036 $\frac{1536}{1800}$ holds. These farms are supplied with buildings, but the others, each of an area of more than 500 holds, are either absolutely unequipped or at any rate in a very defective manner. The lease of the farms is twenty-five years, the other leases of larger or middle size average at six years, the smaller, yearly leases. The net revenue from the farms leased is in the final result decreasing, because in later years the largest and best quality and more valuable farms have been given over to colonisation, and in 1899 many burdens were taken over under the control of the Inland Revenue officers, including bridges, ferries.

On the other hand a small rise in the average rents is manifest, being, perhaps, due to the fact that the lease agreements assure rational cultivation and farming with the

object of maintaining the wealth of the soil, since the short lease system is inimical to that interest.

In view of the fact that the leased territories in the south in the counties of Hunyad, Krassò-Szörény, Arad, Csanád, Temes, Torontál, Szerèm and Bácsbodrog, are amongst a poorer population, belonging to different nationalities, and to whom these leases are absolutely necessary, the principle laid down by the Minister of Agriculture was to lease the State lands for the economical and stock-breeding interests of the respective districts. Thus it is the settled policy, where economical interests and chiefly the development of stock-breeding make it desirable, to lease the State lands, especially the pastures, to the respective communities and eventually at lower rents.

On the other hand, arable lands, the use of which is almost vital to the neighbouring villages, and which have but scanty arable land in their control, were divided in 5-10 hold lots, and given to the small farmers of these villages.

This consideration led to the important point in the agreement, that the leaseholders of the larger farms—private men as well as communities—who are allowed to sublet portions, agree not to exact from their sub-tenants more rent than 10 per cent. on the rent actually paid by themselves.

The State also took into consideration the position of the smaller farmer of the poorer villages. Thus, for instance, the farm at Bács Keresztur (250 holds) is divided into lots of 2-3 holds; a list is kept of the small farmers requiring arable land, who draw lots for the leases of one year's duration; unsuccessful applicants have the preference in the next year.

In the interest of live-stock breeding the stud farm at Kolozs Torda was organised by the Minister of Agriculture in 1899, in such a manner, that besides the keeping up of

the Hungarian herd of cattle at Torda, the half-bred stud from Fogaras was transferred to Kolozs to a farm leased from the Roman Catholic Church for thirty years, at the same time a farm at Mezöors was kept up to produce the necessary quantity of fodder and oats. This breed of horses was successful at Kolozs.

From the general economical point of view the business done on the State farms in pisciculture and rice growing is worthy of notice. The State farm of 355 holds at Pettau, and the rice cultivation there of 458 holds, were taken in 1901 for farming by the State itself, the former being equipped for pisciculture, and the latter for rice cultivation.

One condition of the development of our pisciculture is to have the necessary eggs and young fish produced in quantities corresponding to the population of the river, and at reasonable prices. The negotiations for this purpose having been unsuccessful, the Minister of Agriculture devoted the State farm at Pettau, which is suitable for the work, to the object of organising pisciculture and egg-breeding.

Since Hungarian grown rice—because of the large amount of protein contained in it—is of excellent quality, and is as good as any foreign rice, and since in the county of Bács, close to the Francis Joseph Canal, there are additional territories suitable for its cultivation, rice cultivation is not less important than pisciculture. Consequently, it is desirable to keep up a fully-equipped station, serving as an encouraging model to the farmers of the neighbourhood. For this reason one part of the Pettau State farm, the Pekla station, which had always been used for rice-growing, was taken over in 1901, and equipped in such a manner as to fulfil this purpose.

With the same idea the Minister of Agriculture bought the rice-peeling mill, which was set up on the farm of Kis

Sztapár in a State store building, by the former farmers of the rice station, and, working in a very satisfactory manner, is at the service of the rice-growing farmers. On this basis the National Co-operative Society of the Hungarian Rice-growers was started, and leased the rice-peeling mill.

II. *State Spas.*

The Exchequer is the proprietor of the spas of Hercules, Rankfüred, Vizakna, and of Radna-Borberek. Hercules bath is leased; the others are kept up by the State.

In spite of the fact that all the four spas are, according to their merits, unparalleled in health-restoring, and by their nature given excellent position suited to fulfil the requirements of the modern age, up to the present time only the equipment of Hercules is satisfactory. Rankfüred is merely the recreation place of sick persons of more modest requirements, and small State officers and their families. In late years the equipment of Rankfüred and Vizakna has made some progress. Thus the baths were provided with natural aqueducts, and beside this, all the buildings, parks, roads, and promenades attended to each year. At Rankfüred the equipment was renewed; at Vizakna were built bath buildings and hotels by the Minister of Agriculture, the grounds necessary for these objects and for afforestation being acquired from the neighbouring proprietors; 29 holds of barren mine territory were taken over by the Department.

The State spas render a very important service by allowing State officers, of smaller stipends, and their families, in yearly increasing number, free baths, free bedrooms, exemption from all charges.

The number of permanent visitors was :

	At Hercules.	At Radna Borberek.	At Rank- füred.	At Vizakna.	Tourists.
1895 .	6,345	—	183	556	11,644
1896 .	6,774	—	300	600	14,800
1897 .	7,225	—	483	694	16,400
1898 .	8,807	—	427	727	18,500
1899 .	9,997	—	553	700	21,665
1900 .	9,728	—	586	1,044	33,324
1901 .	8,480	—	382	856	34,420
1902 .	10,185	81	493	831	31,381
1903 .	10,895	115	422	1,074	45,736

Ö Radna-Borberek in the county of Besztercze-Naszód was taken over from the management of the Department of Finance in 1902.

FORESTRY.

Among the dispositions of the 31st Act of 1879, regarding forestry, without doubt the most important were those which related to the conservation of the present forests, assured the protection or the re-establishment of those destroyed, and finally dealt with the development of their permanent value. The importance of forests is indicated not only by the direct material interests of the proprietor, but by general interests, too, because a required quantity of well-preserved forest, being in right proportion to the geographical position, climatical, economical, commercial, and industrial circumstances of the country, not only keeps a large portion of the national wealth in living trees in permanent readiness, but ministers to the general health by its favourable influence on climatical circumstances. It supplies raw material for the development of many industries without the help of foreign countries, and material which in our country is worth many millions yearly for trade with

foreign countries, which produce a less quantity, or, in comparison to ours, worse quality of wood.

Such preservation of the forest is required, however, by this Act on Forestry only on such soils in which no other kind of cultivation can take place, and it gives permission to private proprietors (except proprietors mentioned in the 17th clause of the said Act) on those soils, which are called not absolute forest-terrains, to destroy their forests and use the territories in another way. Still more, the Act gives permission to those proprietors mentioned in the 17th clause (mortmain) to destroy those parts of their forests not grown on an absolute forest-terrain, if the proprietor is willing to afforest another barren, or to agriculture less suited, terrain at the same time. Under this Act there has been lately a really greater destruction of forest, but, as a rule, to a better purpose than before, viz., to develop either vineyards or some other kind of a more intensive agriculture. On the other hand, in view of the colonisation schemes, it was necessary to reduce in a certain manner the quantity of forests. This reduction, however, was justified by the great aims of home colonisation.

It would have been, however, a mistake, if the Department had omitted every effort to counterbalance the effect of this decrease of the forests, due to political interests, and in some other cases resulting from the private interests of the proprietors. The Department extended its care, besides the building up of a permanent fund for buying forests and administering them under the 26th Act of 1884, in the first place to regain those territories, which were denuded before the Act, of trees, and which, because of their soil and position, could have retained only by a careful forest administration their productive power, and without it became barren and overflowed. Such

territories are in abundance in the country, and are of great disadvantage not only to their proprietors, but also to their neighbours and the whole country. They yield absolutely no profit; the value has sterilised, and they are a threatening danger to the neighbours in snow melting periods or rainy seasons, when the water running down brings absolutely useless rubbish to the neighbouring land. It is an undoubted fact that the gigantic work of the river regulations is always exposed to danger, unless the afforestation of these barren territories reaches at any rate a reasonable extent.

It is policy, therefore, to promote the afforestation by any legal manner with the co-operation of the State's means, and the successes in every year show that the proprietors themselves in increasing numbers are keenly alive to the disadvantages of their former negligence, and that the supreme guarantee of a financial success, namely, the awakening of the interests of the proprietors, is succeeding, the State aid for their purpose being asked and given to a yearly increasing number of landed proprietors.

The State aid, in afforestation of barren territories, is perfectly legitimate, because the result is a public benefit and not only a private one; and on this further account, that the present proprietor is obliged to incur such charges, which can only be remunerative after some years, and wholly only after ten years. Therefore, the Department extended all those arrangements made before this period to foster the afforestation of barren territories, and established new ones. The officers managing the State forests produce the seedlings, which are distributed free of cost for the afforestation of barren land, at present on a larger scale; the schools for educating forest keepers, as well as those municipal and other officers managing forests, who manage

the seedling gardens for this purpose, have in the last few years greatly increased their production of seedlings. The Department established, at the State cost, new seedling gardens in different parts of the country, the extent of which was increased in 1898 by 25, 1899 by 33, 1900 by 44 hectares, and the extent was in 1901 237 hectares. Besides this, the number of prizes for afforestation were raised from 6 to 12, and since 1899 to 18. The experiment shows that the financial aid given to poorer landed proprietors is very useful for the afforestation of barren land, and the Department distributes from year to year increasing sums for this purpose; and as the expenditure was very quickly in excess of the receipt of the national forestry fund, Parliament voted a sum as State aid for afforestation of barren land, and this vote has risen from the original 100,000 crowns successively to 350,000 crowns. The consequence is, that instead of the 10–15 millions of seedlings distributed during several years, now the yearly distribution is three times as much, which reclaims yearly about 4,000–5,000 hectares for the forests, not including the production of the seedling gardens for the State, and by the State-managed private forests, municipal, &c. forests, and the afforestation by these means.

On the other hand, some dispositions of the 19th Act of 1898, which require those properties of legal personalities, which are legally required to be reafforested, to be given over to the management of the State, and give power to private proprietors to hand over their properties, if they wish it, to State management, contributed to a great extent, to the afforestation of barren land, and the progress in this direction is very satisfactory and very hopeful. Since 1899 the afforestation of a barren territory of 492 hectares, bordering on the city of Fiume, by help of

the seedlings, produced there by a State seedling garden, is going on in an energetic manner, and up to the end of 1901 50 hectares have already been afforested.

The purchase of forest soils, which was indicated by public policy, the Department has followed on a larger scale during late years; the most important being those in the High Tatra. There the pearl of the High Tatra, the estate on the Csorba lake, and some other forests were bought up, the buying of which served not only economical and political, but at the same time social aims also; as by these purchases it was made impossible for foreigners to buy the lands, and at the same time assured the dominant influence of the State.

Including the purchases to be completed in 1902, the State has already there a complete forest of an extent of 4,822 hectares, of a value of 4.3 millions of crowns.

To propagate and develop the knowledge of forestry, the Department established, in connection with the Forestry Academy at Selmeczbánya, an experimental station for forestry, which as central station and four external experimental stations connected with the four forest-keeper schools has been active for three years, studying in the first place practical forestry problems, and giving advice to all those forest proprietors requiring it, on all scientific as well as practical questions. For the study of the foreign economical conditions, as well as the study of those institutions which might be suitable in our country (the study of forestry abroad is trusted to be generally useful to our forestry also), the Department found opportunities to send out some members from the officers of the State forest department to foreign countries for study.

The tendency in the management of the State forests and generally in this kind of work was necessarily con-

servative, but still some larger experiments were made to raise the value of forests, and generally such new methods which gave reasonable hope of increasing their value. Thus, by changing the usual modes of selling wood in large quantities, the material was sold recently in smaller quantities, in order to give opportunities to merchants of smaller capital to compete in the buying. This resulted naturally in better prices. It is, however, to be remarked, that the rising prices in wood were of the uttermost importance, but still the results were sufficiently satisfactory to cause a continuation of this newly-tried and successful method.

The aim of State forestry is not only to manage and make valuable the forests under their management, but to help, where it is possible, while looking to its own business, other branches of agriculture also.

So for five years the production of wood sticks for vineyards was increased in order to help the reconstruction of larger vineyards, and these are sold to farmers reconstructing their vineyards at cheap prices, and sometimes free. To help the silk industry, the State seedling gardens produce sufficient mulberry seedlings to cover the demand, and distribute them liberally.

To encourage interest in fruit-growing the State officers established in late years successfully an increasing number of nurseries and fruit-gardens on a smaller scale, to encourage the industry and interest of the farmers, and in order to distribute different kinds, grafting stocks at a cheap price, sometimes quite free. In growing both the mulberry as well as the fruit seedlings, the State forestry officers co-operate who manage municipal and private forests; and this is very important, because the organisation of the State management of municipal and private forests being on the increase in every part of the

country, there is a fine chance of great results from this co-operation. Up to the end of 1902, the State forest officers established actually an increasing number of pepineries to an extent of 54·3 hectares.

The special aim of this organisation, which has been working since 1899, is under the 19th Act of 1898, to co-operate in consolidating and developing the forestry in the country. The State management of the forests owned by municipalities, co-operative bodies, or associations was organised in some counties before this Act, but not on a permanent basis. In order to make permanent the useful consequences of the State management introduced by separate agreements, and to extend its working to all the proprietors in the country, legislation was needed, and this want was fulfilled by the 19th Act of 1898.

This Act, in force since the end of July, 1899, provides, that those proprietors who are under the obligation by the seventeenth clause of the Forestry Act of 1879 to keep permanent and systematic management of their forests, and when they are unable to pay duly educated officers or keepers can hand over their forests, as well as any barren portion, the afforestation of which is obligatory, to State management. This Act provides further, that private proprietors should have also the opportunity, if they are willing to do so, to hand over the management of their forests and barren lands to the State. It also provides that all these territories should be under duly skilled management at the lowest fees, and, according to their value, managed in the manner required by the Act. The business management of co-operative bodies and communities, with due regard to their common and private interests, was legally regulated. This was a long-felt want.

The material position of the forestry officers, as well as the working of this Act as regards the management of State forestry, was also a problem of the last few years. The arrangement of salaries and wages paid was begun shortly after the passing of the (IV.) Act of 1893, but was partly insufficient, and partly disadvantageous because of the better opportunities in other branches. All equitable requirements were satisfied successively as it became possible.

The general development of forestry seems by the fundamental Acts of Parliament to be fairly secured, and full of hope for the future.

It is absolutely necessary, however, that the working of these Acts should be helped by the good will and support of the forest proprietors, and be in harmony and co-operation with the other factors in the development of forestry. The productiveness, development, and principally the proportion of development in forestry are satisfactory, as was shown at the Paris international show, where the Hungarian part of the forestry-group gained much praise.

The timber export from Hungary increased regularly from 1890 to 1899. Pine-woods and saw-works had a permanent and increasing demand in the German markets, the value of export increasing during the years 1896 to 1900 from two-and-a-half to five millions of crowns. We were able to sell in some other of the chief markets our raw wood and manufactured articles in wood, the export of which was doubled in the same period from three to six million crowns value. Only in the export of oak casks was there a decrease in Germany, principally in consequence of the American competition, in France principally owing to the bad or mediocre vintages. Since 1899, however, this export has been increasing

again, and last year's attained a sum of nineteen millions of crowns. On the whole, the timber export during these ten years has been on the increase.

Unfortunately since 1900 we have had a severe depression, and the unfavourable economical conditions are also felt in the wood market. The export to Germany has decreased very noticeably in consequence of the industrial, and chiefly building trade, crisis; in the same manner our export of building and work-timber, as well as sawmill materials, has been on the decrease to Austria, France, and all other markets. This loss was only partially recovered in consequence of the latest abundant vintages in France by the increase of our oak casks export.

Just lately, in consequence of a reduction in the Swedish and Russian export, we have been able to obtain a market in England for pine-wood. This circumstance, as well as the proposition always reiterated to export timber to South Africa, having some prospect recently, there is hope for better markets for our timber merchants, and this is absolutely required through the depression caused by the Protectionistic tendencies of Germany.

There is unfortunately no increase in our export to the Orient in the last ten years. Roumania was able sometimes to put on the market larger quantities of wood. Bulgaria has succeeded just lately in obtaining free import and transport facilities from Turkey, and thus expel us absolutely from those markets.

ADMINISTRATION OF THE RIVERS.

The administration of the rivers started a new era by their transfer to the Minister of Agriculture, under the 18th Act of 1889. To thoroughly carry out the work, a

special department was organised, and in close contact with the administrative service, a technical service for technical questions, which was enabled to work harmoniously in the smaller council, and later under a common chief, as a general service for water buildings and improvement of soil, and still later, as the general administration of waters. The external technical service, provided from the river and cultivation engineer offices, is connected through the district inspectors with the internal central service; beside this, for the largest and most important questions was organised the national technical council for water buildings; the bye-laws have been definitely drawn up, and most of them are already in working order.

The first object of this service was to arrange a uniform plan and system of working for the maintenance of the regulation of the Tisza course. This idea was sanctioned by the 3rd Act of 1894. Then came the fixing of uniform regulations relating to the middle course of the Danube, and some other more considerable rivers of the country. The works carried out by the "dam" societies could not have satisfactory effects whilst the beds of the rivers were not regulated by the State, and the troubles caused by floods were not removed. Indeed on the course of such rivers, where the accumulation of ice is of frequent occurrence, the dams give only doubtful protection, whilst we are unable to remove the causes of this accumulation. This can only be done by controlling the rivers. There is no country in Europe where protective measures against flood were carried to such an extent as in our country. And here the question deals not only with the economic defence of 5,500,000 holds of land, but with the safety of the life and wealth of hundreds and hundreds of flourishing villages and towns. Besides this, the interests of commerce demand the removal of any hindrance to navigation,

which on the Middle Danube very nearly coincide with the worst places for the accumulation of ice. The Legislature already provided for the removal of the two greatest obstacles by special Acts dealing with the regulation of the Lower and Upper Danube, and the necessary works were completed in 1896. The plans of the regulations relating to the Middle Danube, and some other more important rivers, were sanctioned by the 48th Act of 1895, which voted at the same time the necessary material means, giving, starting from 1896, in 12 years 102 millions of crowns to the Minister of Agriculture for the purposes of water-buildings. Under this head were voted from 1890 to 1894 yearly, 5,388,000 crowns, in 1894, besides this, a further 5,000,000 crowns, in 1895 further 1,400,000 crowns. Since 1896, however, for 12 years there have been 102 millions of crowns at the disposal of the Minister of Agriculture, who used from this sum :—

1896.	1897.	1898.	1899.	1900.	1901.	1902.
10	10	12	10	7½	7½	7½ millions of crowns

The Minister of Agriculture introduced a Bill in 1897, in consequence of the 1897 summer flood on the Danube, empowering him to use from the 102 millions of credit voted by the 48th Act of 1892, 12 and 10 millions yearly in 1898 and 1899, instead of the 10 and 8 millions respectively. The Bill was passed as the 20th Act of 1898.

In view of the fact, that in 1895 an extraordinary flood came down on the Tisza Valley, which surpassed, from Szolnok up to the mouth of the river, the greatest floods hitherto experienced, it became an urgent necessity to alter the sections on this part of the river to real river-beds. Most of this work was completed, all the sections below Szeged being widened to the full width required. Between

Szeged and Szolnok there are only two sections to be widened and barraged, and this is being carried out at the present time. Above Szolnok there are only three sections where work remains to be done, at the section at Szolnok, Püspöki, and Kötelke ; all three are being executed.

Besides these sections in the river bed of the Tisza, considerable improvements were effected, the result being, that the navigation of the river in the years 1901, 1902, and 1903 was possible on the lowest waterway between Titel and Szolnok without any interruption.

The riverbed improvements made still greater progress on the Körös rivers ; indeed the work there—besides one cutting, which is also being made—is finished, and the object, to safeguard the Körös Valley from flood as much as possible before that of the upper Tisza Valley can be said to be assured.

The cutting works ordered by the 3rd Act of 1894, on the Bodrog river, are finished, and besides this the regulation of the mouth of the Latorcza river is also under operation.

The regulation of the River Szamos below Szatmár, ordered by the 48th Act of 1895, is mostly done, and besides these several works were executed for the Defence Society on the Szamos river and the Ecsed morass to safeguard the town of Szatmár.

Proportionally the least was done on the river Maros, but the chief works downwards from Konop were also started here, and to a greater extent in late years.

As can be seen from the foregoing facts, the most urgent regulation works from the defence point of view in the Tisza Valley are nearly all ready, and so the State has fulfilled its engagements more extensively and quickly than the Act anticipated. This was generally appreciated by the Defence Societies of the Tisza Valley.

In consequence of the limited amount of the grant the greater activity shown in the Tisza Valley naturally resulted in the smaller quantity of defence works on the Danube Valley effected by the State in the first half of the twelve years' period; consequently only inconsiderable work was done on the Morva and Våg Rivers; on the Mura River only the frontier line between Hungary and Austria was regulated at the yearly cost of 100,000 crowns; on the Szava only the worst part close to Racsa at the cost of nearly 600,000 crowns; on the Kulpa only a barrage work of a smaller size was made close to Sziszek; on the Temes and Bèga Rivers none of the more considerable regulation works were started. On the Dràva, near to Barcs, and principally below Eszèk to the mouth of the river, there were carried out some permanent regulation works at a yearly cost of 500,000 crowns, chiefly to make the river navigable from the mouth to the town of Eszèk, and this will be secured at the termination of the work started in 1902.

On the Danube itself, during this period, works of great importance were effected, all the cuttings planned being made and all those in course of development improved. Besides this, in order to improve the protection of Budapest, the regulation of the Promontor branch of the Danube was terminated, and the regulation of the Ràcz Almas-Paks branch, lying immediately below it, and one of the worst branches of the Middle Danube, both from ice troubles and the obstacles of a dry season, was at once started. During the same time important works were executed on the branch between Bega and the Dràva mouth; the regulation works of the ten kilometres of the river above the mouth of the Tisza were finished, and the similarly ten kilometres branch by Palánka which were in a bad state. The first attention was paid to

the removal of dangers from accumulations of ice, and the worst kind of obstacles to navigation ; both objects can be looked upon below Budapest—with the exception of some points—as secured.

Some important works were made during the same time exclusively for navigation purposes. The entrance to the Francis canal was transferred from Tisza Földvár to below Ó'Becse at a cost of three millions of crowns, and a winter harbour was built at Ó'Becse. The benefit and utility of the works at the mouth were acknowledged at the International Navigation Congress at Hague.

Works for securing navigation in dry seasons were started on the Bega Canal on the branch between Nagy Becskerek, and Titel, which consist in the building of barrage works and two docks at Ecska and at the Bega mouth. These are the first works of this kind in the country.

The same system is to be applied to make navigable the Körös River from the mouth to Bèkès, respectively to Gyula, by four barrage docks ; these works were begun in the year 1903.

Extraordinary activity was developed in the later years in the building of winter harbours. The newly-built winter harbours at Pozsony, Komárom, and Eszèk, were in use in the autumn of 1901 ; the winter harbour at Lágymányos (close to Budapest) was much enlarged in later years ; the winter harbours at Zimony, Czigàny Sziget, and Baracska (near Bezdàn) are kept always—owing to their great importance—in good order, as well as the winter refuges at Szegszàrd and Tas. The keeping in order of the Sugovicza (near Baja) is the duty of the Francis Canal Company, Limited.

Besides these, the navigation gained very great advantages in the regulation of the Middle Danube by the fact

that simultaneously with the regulation works were built quays and harbours, because the millions spent by the country on the regulation of the river cannot be rendered profitable in navigation without the encouragement at every point of access to the river.

Lastly, there are the supplementary works executed for the regulation of the Upper Danube for improving the depth of the river to secure the possibility of navigation, not only by removing the shingles brought down occasionally by the floods and creating temporary or permanent blocks, but to improve the low water places also; these works were begun three years ago, and the results are promising.

In the defence works the societies showed in the last decade great activity. Amongst the societies of the Tisza Valley the works in this direction were urged on by the extraordinarily high flood of 1888, and were brought under a definite policy by the influence of the 1895 flood. In the societies of the Danube Valley the respective works were begun under the influence of the extraordinary summer floods of 1897 and 1899, and the building and strengthening of dams with regular dimensions are mostly finished or under operation. On the whole of the Tisza and Danube Valley there are only four bays, which did not constitute themselves into societies, one between the Tisza and Szamos; two close to the mouth of the Dráva into the Danube, which did not commence the building of dams.

After the preliminary inquiries and conferences dealing with the defence work in the Bega Valley, a Bill was promoted and passed in the summer of 1902, by which a burning question and open grievance of the Temes-Bega Valley found solution.

For the defence considerable works were executed in

the interests of the towns of Pozsony and Komárom ; and the preliminary inquiries and locations to defend the towns of Győr and Esztergom are ready.

But great progress is shown not only in the defence works, but also in the organisation and direction of the defence itself, and very important alterations and improvements were made.

Stringent regulations were issued dealing with the duties of the societies, State and local government offices in the defence works ; railway and military co-operation in time of danger was also arranged.

All these efforts were crowned by the national organisation of information dealing with floods, &c., which made it possible for all those interested to hold conferences and make arrangements to cope with the difficulties at the requisite moment.

In proportion with the defence works, which are almost finished, still greater activity was shown by the societies in regulating the inland waters, and to such an extent that now there is not one of the water societies which has not completed at least the preliminary inquiries, and in the Tisza Valley there are only two, and in the Duna Valley only six which have not already started the actual work. The great activity of these works is shown by the fact that raising the level of inland waters there are now not less than ninety pumping stations in working.

The regulation of these inland waters not only fostered in a very large measure the extent and surety of agriculture, but also increased in other directions the activity of the farmers, as is shown by the simple fact that in the territory of the Berettyo society *commassation*¹ work has been started in ten villages at the same time.

With regard to the improvement of land and develop-

¹ See Preface, p. xxii.

ment of the agricultural engineering service, it is satisfactory to notice the fact that, up to 1890 we had only eight, and up to 1895 only eleven agricultural engineers' offices. The number of these offices was increased in 1897 to thirteen, in 1898 to fifteen, in 1899 to seventeen, and in 1901 to eighteen, and the extent of the work covered by these offices has increased from 266,509 holds to the end of 1902 to 765,927 holds, and the number of the societies controlled by these offices increased from seventy to 115.

The demand for agricultural engineers was not decreased in the time of a general depression and agricultural crisis, but on the contrary is being increased in later times; just in the same manner it increases the number and the extent of work done by them. Especially a greater and satisfactory increase is shown in the late Transylvanian counties, where, in connection with the *commassation*,¹ works to be extended to whole villages are both planned and under execution.

Naturally the greatest part of this work is in the defence works and regulation of rivulets; in the drainage there has been for many years stagnation, and only just lately are there signs of vitality. In late years successful efforts have been made to check the deposit of sediment in some places by considerable State aid.

Increased activity is shown in irrigation work. By the 30th Act of 1900, on the establishing of irrigating canals, there was established only one irrigating society over a territory of 2,000 holds (of which there are now about 800 holds dealt with); but on private land there is satisfactory progress. As to the results of irrigation works there was at the beginning some considerable diffidence amongst the farmers owing to the fact that the management of the existing irrigation works left much to be

¹ See Preface.

desired. A large part of the irrigation work was in the meantime neglected. The first duty was therefore before starting any new policy to reconsider the state of the existing irrigation schemes, and this was done by the experimental station for plant growing at Magyaróvár. These studies, the practical results of which are to be shortly published by the experimental station in an exhaustive report, have detected all the faults and omissions which were made in irrigation from the economical point of view; at the same time it was necessary to establish permanent control and study, and to arrange model and experimental grounds; these were located at the experimental station for plant breeding; and further steps were taken to control and advise from the economical point the irrigation works in the low land, one member of the experimental station being transferred to Arad, in order to co-operate there with the agricultural engineers' office. The results up to the present time have justified these measures.

The Sanitary Engineering service, organised in 1890, has shown much progress. The demand on it is increasing yearly, and during its ten years of existence great success has been achieved in dealing with the sewage and water supply of towns and villages, as well as in boring artesian wells and planning pumping stations.

The statistical data relating to this service are as follows:—

The natural waterways of the country are 4,732 kilometers long, of which 2,860 kilometers are navigable by steamboats. To the regulation of these waterways— independently of the 25·5 millions of crowns spent on management and up-keep—the State has given during the period 1867 to 1902, 206 millions of crowns. Of this sum 65 millions have been given in the last six and seven years.

The technical service dealing with the waters was supplied in 1902, besides the national waters board, by 16 offices of river engineering, 18 of agricultural engineering, 2 teachers of regulations, 1 for quarries and 1 for dredging purposes. At these offices were 1 administrative chief, 5 other advisers, 26 technical advisers, 46 chief engineers, 66 engineers, and 60 assistants. The control and direction of the lower grades was carried out in river engineering by 69 river inspectors, in agriculture engineering by 90 "meadow-masters," in the sanitary engineering by 2 "boring masters," in the piscicultural by 3 "fishmasters." The total cost of these technical offices to the country was last year 1,700,000 crowns.

The works of the defence and regulation of inland waters are carried on at the Tisza valley by 72, at the Duna valley by 28 societies.

The territories protected are in the Tisza valley 3,700,000; in the Duna valley 1,900,000; altogether 5,600,000 holds, and there are still to be defended nearly 400,000 holds. The length of the dams surpasses 5,500 kilometers.

The length of the inland canals exceeds 7,400 kilometers, and on these are in work 90 pumping stations, owned by the societies.

For the defence and regulation of inland waters was expended by the societies on the Tisza nearly 202, by those on the Danube nearly 94, by both altogether nearly 296 millions of crowns.

The agricultural engineering offices completed works for the improvement of the land on 25,755 holds, started and added to works on 142,320 holds, planned for 160,757 holds, and made the initial drawings for 543,372 holds; so that the whole of the works for the improvement of land dealt with in 1902 an area of 871,804 holds.

From 1879 to 1902 defence works have been completed on 721,285 holds, drainage on 23,789, irrigation on 20,853, altogether on 765,927 holds.

Of these in the last eight years defence works have been made on 303,769, drainage on 7,976, irrigation on 2,897, altogether on 314,596 holds.

Under the control of the agricultural engineers' offices are now 115 societies for the improvement of land.

For the year 1903 it is intended to spend $7\frac{1}{2}$ millions of crowns under the 48th Act of 1895. The greater part of this expenditure will cover the expenses of the works already begun on plans drawn up in previous years, and of some other works.

COLONISATION.

In colonisation work we find two kinds of activity: one is the result of the colonisation carried out on the State farms prior to 1890 by the Minister of Finance, the other is the work begun only in the last few years by the Minister of Agriculture. The policy of the colonisation effected by the Minister of Finance was—except the colonisations which were carried out before the 22nd Act of 1873—mostly the removal of those settlements which were located by the War Office formerly by the banks of the Lower Danube, and devastated there by the flood, as well as the removal of people from some over-populated districts, and the settlement of the Csángós, re-emigrated from Bukovina; and in spite of the fact, that it was a general tenet that the new settlers have paid but little for the land, yet when the new colony was arranged, and the settlers introduced, from that very moment the colony received neither attention nor steady economical control and help, which are absolutely vital to new communities until they have acquired strength.

The continual complaints from these settlements led the public to think, that State colonisation in our country is quite unsuccessful, and that those aims regarding our policy in land tenure, of which a colonising action is one important coadjutor, we cannot realise in this matter. Experience, however, showed, that in order to strengthen these settlements, the special and permanent control of the Government is necessary, and by this help the settlements will be strong and able enough to fulfil the other political aims connected with their foundation. These older settlements, as well as all those State farms specified for sale purposes, with nearly 12,000 colonised families, and the remnant of the State farms of an extent of 14,000 holds fit for colonisation, were handed over in the interest of extensive and specific economical control in 1899 to the Minister of Agriculture.

From a fund formed under the 5th Act of 1894 the then Minister of Agriculture, Count Andrew Bethlen, purchased in 1897 four estates in the Transylvanian counties, and one in the county of Krassò-Szörèny, viz. :—

1. At Nagy Sàrmàs (county of Kolozs) 4,268 holds.
2. At Magyar Nemegye (county Beszterede-Naszòd) 722.
3. At Vicze (county Szolnok-Doboka) 836.
4. At Alsò and Felső Kerczisora (county Fogaras) 275, and
5. At Bukovecz (county Krassò-Szörèny) 1,799 holds.

Of these estates some forest portions were given to the population at Nemegye, and some parts of the estate at Bukovecz either absolutely or comparatively useless for colonisation, so the territory remaining for colonisation was 6,832 holds, 1,041 holds being in the county of Krassò-Szörèny, and 5,791 holds in the Transylvanian counties.

In addition were bought by the Minister of Agriculture in 1899 at Sztancsófalva (County Temes) 4,707 holds.

In 1900 :—

1. At Alsò and Felső Detrehem (County Torda-Aranyos) 2,084.

2. At Bùn (County Kis Küküllö) 1,310.

3. At Bálincz (County Krassò-Szörény) 453.

4. At Fehèregyháza (County Nagy Küküllö) 1,291 holds.

In 1901 :—

1. In County Torda Aranyos at Maros Ludas, from Mr. A. Eczken, 1409.

2. In County Torda Aranyos at Maros Ludas and Maros Bogát, from Count Andrassy, 2,314.

3. In County Kis Küküllö at Bùn, from Baron P. Szentkereszty, 62.

4. In County Nagy Küküllö at Fehèregyhazà, from Baron P. Szentkereszty, 12.

5. In County Kolozs at Kara and Kolozs, from Baroness I. Rottenthal, 1,009 holds.

In 1902 :—

1. In County Komàròm at Ó Gyalla, from the family, Konkoly-Thege, 1,561.

2. In County Pozsony at Csàkány and Alsò Csölle, from the Zircz Abbey, 1,145 holds.

Under the management of the colonisation fund there were, at the end of 1902, 24,127 holds—8,907 this side, 15,220 holds the other side of the Transylvanian mountains.

Of these were settled : at Nagy Sàrmás 4,268, Magyar Nemegye 477, Vicze 619, Igazfalva 1,041—altogether 6,405 holds.

Remaining under the management of the Minister of Agriculture 17,722 holds ; viz., at Sztancsófalva 4,707,

Magyar Nemegye 236, Vicze 188, Bálincz 453, Alsò and Felső Detrehem 2,084, Kara and Kolozs 1,009, Maros Ludas and Magyar Bogàt 3,723, Bùn 1,310, Fehèregyháza 1,306, Ó Gyalla (in the hands of the ex-proprietors) 1,561, Csàkàny and Csölle 1,175 holds.

STATE FORESTS SPECIFIED FOR COLONISATION.

Besides the estates bought from the fund for colonisation there were specified for colonisation by the Minister of Agriculture some of the State forests which are suitable for turning into arable land, viz. :—

In the county of Krassò Szörènyat: 1. Bálincz 4,270; 2. Valeàlunga 4,934; 3. Brazova 2,100; 4. Facset 2,495; 5. Kuttina, Kladova, Rakitta, Poduràny, Szudriás, Zsuppàny, Remete, and Monostor 4,100.

In the county of Temes at: 6. Mosnicza 3,631; 7. Jezvin, Sustra, Sziklàs, Kis, and Nagy Topolovecz 1864.

In the county of Bácsbodrog at: 8. Apatin 6,386—altogether 29,780 holds.

These territories were leased in small lots under the obligation to cut down the trees, and after this was done, to be used for colonisation.

Thus were colonised (a) at Apatin 3,200; (b) at Facset 1,200=altogether 4,440 holds. Lastly, with the same object, in the first place in experimenting with lease and metayer colonists, the Minister of Agriculture took over an estate owned by the Roman Catholic Chapter at Csanàd and offered by them, of 2,985 holds at Silingyia (county of Arad) for twenty years on the obligation of responsibility, and without any guarantee of the revenue.

The fund for colonisation, six millions of crowns, covered not only the purchase-price of the estates acquired, but

also the cost of building the homes of settlers, the clearing expenses, and on the settlements founded on State forests, the cost of building some public buildings, and the cost of certain advantages given to the settlers, for which there was no estimate given by the Ministry of Agriculture. In view of the fact that by the Act the amount of the fund must be maintained and not lessened, it was necessary to provide that the cost of the building and clearings should be repaid by the settlers to the fund simultaneously with the price of the land; and on those lands which were not purchased, the colonists were obliged to pay back also the sums advanced for other purposes simultaneously with the interests and annual payments of the land prices to the fund.

The actual amount of the fund for colonisation decreased at the end of 1901 to 161,904 crowns and 15 fillers; and so that the activity in colonisation should not suffer any hindrance from lack of money, the Minister of Finance advanced to the fund from the Exchequer two million crowns at three per cent. interest. Including this sum the total voted was 8,100,000 crowns.

There are seventy-two settlements under the management of the Minister of Agriculture, eight being under the 5th Act of 1894, forty-three under the 22nd Act of 1873, twenty-one colonies being founded before the passing of the Act of 1894; on these the conditions are regulated by the special agreements made with the settlers.

In the settlements founded since 1894 the colonies receive free the grounds required for public buildings, roads, and streets, as well as the land necessary under Schedule 3 of the 5th Act of 1894 for common purposes, no difference being made whether original or purchased land. Following the disposition of the aforesaid Act—the State being the coloniser, and being obliged to pro-

vide elementary education of a satisfactory kind—the Minister of Education organises everywhere on the settlements elementary schools of Hungarian language, and also, where necessary, free schools or playgrounds for the children, without demanding either the five per cent. elementary or the three per cent. infant school rates from the settlers, but demanding from the State or the building contractor, if any, the necessary buildings. The advantage of free schools and infant schools was extended, for the purpose of lessening the burden of the settlers, by the Minister of Education lately to all those colonies settled on State farms before 1894, where the local authorities acquiesce in the nationalisation of the schools.

In order to improve the colonies and to develop their material position, the following measures have been taken in the last five years for the settlements managed since 1890 by the Minister of Agriculture.

1. The conditions of payment were altered in some settlements by lengthening the period of amortisation, and by lowering the rate of interest, as well as by distributing the arrears over a longer period. This measure was not extended to the settlements at Vadászerdő and Bodófalva, because in these colonies the selling price of the lands was, considering the market value, fixed very low.

The interest to be paid on the arrears is in the colonies formed on State farms 4 per cent., on the farms bought by the fund for colonisation 2 per cent.; the time for amortisation 40-50 years. The settlers in the new colonies have besides this the advantage of paying in the first two years only interest, the amortisation of the purchasing price beginning only in the third year.

The improving of the conditions of payment became necessary, in the first place, in those colonies which form part of a water defence society, burdened on each hold

with a yearly payment of 8-14 crowns, and where the settlements are relatively small in extent, only of 10-14 holds. In the second place, the necessity of improving the payment conditions was found in the older purchased settlements, because the market value of the estates was proved, in the most part, to be higher than the value formed by the capitalisation of the net income calculated on business lines.

2. The clearing of trees, where the lands given to the colonists were uncleared, was promoted by money advances from the Exchequer.

3. The Minister of Agriculture provided for the starting—according to local circumstances—of nurseries, willow nurseries, vineyards, stocks, and mulberry seedlings, and the execution of any necessary works of a water defence character, or improvement of land, as well as for the boring of artesian wells.

4. The Minister of Agriculture decided to erect a model peasant farm in each settlement, and eleven of these farms are already duly equipped.

5. In the same manner the Minister of Agriculture promoted the organisation of the agricultural, church, and administrative institutions in proportion to the sums available, and for this purpose erected, at the cost of the State, the necessary buildings. Thus have been built 8 churches, 4 dwelling houses, 3 village halls, 4 dwelling houses for village clerks, 10 infant schools, 33 schools, and 16 schoolmasters' dwelling houses. Clergymen, churches, and other public institutions also received grants.

6. The cottages for the settlers were built at the State's cost on the condition of the repayment of the outlay.

7. The Minister of Agriculture distributed, in proportion to the sums available, breeding stock, seeds, and fodder, on loan, and fruit trees. The Government granted, as an

experiment to some colonies, concessions for tobacco growing, on 20-30 holds. In most places there were established co-operative societies for credit, in other places for stores and also for marketing purposes.

8. To promote the diffusion of technical knowledge, the Minister of Agriculture organised winter classes, popular lectures, and domestic industry courses, established free libraries, and distributed popularly-written agricultural books.

On the settlement taken over in 1899 from the Minister of Finance, in the first place was quickened the work of accounting and settling, by arranging the selling agreements and transforming the land registers. Besides this, in order to increase the colonies, the Minister of Agriculture distributed at Jozseffalva 586 holds of additional lands, and at Szapàryfalva reserved 1,400 holds of State farms, for distribution in 1903.

By colonisation it has been made possible since 1896 for 612 families of small proprietors, to acquire under favourable circumstances, at moderate prices, homes for themselves. Of these, as well as of the other formerly distributed settlements, 587 were occupied, and there remained unoccupied 25, and 147 new ones will be fit for occupation by the progress of the clearing works.

The whole extent of these new settlements is 14,663 holds, the buying and selling price 4,368,284 crowns; the settlements, occupied since 1896 are in extent 11,621 holds, and their price 3,651,738 crowns, 86 fillers.

All these colonisations gave much food for reflection upon the fact that the State was able to increase successfully her colonising activity, and that the sums given for this purpose are returning to her in the economical and political results. But the experience showed that the present law on colonisation—the 5th Act of 1894—is not

broad enough to secure all the great political, national and economic interests connected with colonisation.

In order to consider all the questions connected with colonisation, the Minister of Agriculture summoned a large conference on the 18th of January, 1900, which discussed, in sittings extending over many days, all the details connected with this question. Partly on the experiences of the former colonisations, partly on the results of this conference, as well as on the ideas often discussed in the daily press, the Minister of Agriculture presented a Bill, which was published in June of 1903.

This Bill embraces the national, as well as agrarian, political side of the colonising activity, regulates State colonisation, private colonisation, and the "allotment" of the land. The "allotment" of the land means the acquisition of a larger estate by local men, and dividing it into small lots. The colonisation means the distribution of land amongst men coming from other districts. The local men cannot be easily cheated in the purchase of local land, because everybody knows the neighbourhood well; and for this reason the stronger control is only required in that place where men, coming from other districts, and leaving their own homes, are dealing in land, and forming colonies. For this reason the Bill proposes to prohibit colonisation without special permission.

The Bill regulates all the juridical questions of colonisation, and after drafting all these propositions there are questions to be solved, certainly not of minor importance, to improve matters in the distribution of land. On the wheat-growing lowland there are pure Hungarian, and from over-population, unhealthy villages and towns. The land is scarce, the population dense. There are, indeed, common lands, trustee lands, and entailed lands in a great

extent, but these do not give free opportunities for the development of the population.

Another great problem is the question of middle-size farms. Everybody regrets the devastation amongst the yeomanry. In the upper parts of the land, in Transylvania, where an ancient holding is sold, a loss of the national feeling goes with it. But in other districts also, where middle-size farms never existed, where, after the expulsion of the Turks, colonisation created whole peasant towns, it is necessary to have middle-size farms and yeomanry, to have somebody able to lead the people, to give them work and represent their cause, body and soul.

The Bill provides for yeomanry in two directions: organisation of new middle-size farms and the conservation, as much as possible, of the old ones. The Bill proposes to form, in the one-third part of the territory to be sold, middle-size farms to the extent of 600 holds, and where there are already middle-size farms, in order to preserve them, gives power to the Minister of Agriculture to purchase them under the colonisation fund (endowed with eighty millions) and then to sell them or lease them (eventually on metayer system) in toto. These measures are wanted, experience showing that those villages and districts where only small proprietors are farming, are too conservative, both from the economic and from the intellectual point of view. An army wants not only privates, but also officers.

The Bill does not aim at a mechanical transformation of the relations in land tenure, but only to give the right direction in the transfer of estates by offering advantages. So the Bill offers advantages to the proprietor willing to sell his arable farm to the State in exchange for forest territory of equal value. The minister has the right to

expropriate common lands if they are wanted for colonisation or allotments, and if a community, trustee, or entailed estate is to be sold the vendor must give the first offer to the minister. And if such estate is sold to anyone who before the purchase has not lived at least five years in the country, be he Hungarian citizen or not, he is obliged to pay a sum equal to ten times the amount calculated on the net revenue of each hold, and of a minimum of fifty crowns to the fund for colonisation.

The former Act of Parliament (5th of 1894) had narrower limits; the new Bill proposes various modes of colonisation. It regulates the establishment of quite new villages (colonies) the incolonisation (part of the colonies), allows the colonisation of villages or farms (farm colonies). Finally, the fourth type is the agricultural labourers colony.

The Bill attempts further to induce different kinds of people to settle. There are settlements of different sizes, and there are specified lands for tradesmen and professional men (doctors, veterinary surgeons). But the size of a settlement is not limited by the Bill, each district having different agricultural conditions, but it must be regulated everywhere by the conditions that the size of each settlement is to be sufficient by personal farming to secure the livelihood of a farmer's family.

In the colonisation for labourers another point of view must be dominant. Each settlement must be of a size, that the labourer could farm it with his family and keep his other occupation. He who was formerly a labourer must remain so, but a labourer who has a permanent home and a small farm to supplement his earnings. Such colonies are to be organised only at such places, where there is permanent work for labour, and where the colonisation of labourers is required by the lack of hands.

Educated by the fact that valueless land was sold—abusing the name of colonisation—at exorbitant prices or under unbearable conditions to unexperienced poor men, the Bill proposes heavy punishments for those colonising without permission, or disregarding the conditions of the permission.

The Bill proposes the co-operation of society in the working of the colonisation. The local work is to be executed by a colonisation committee, and in every county councils are to be organised for the territory of the county colonisation.

The Bill proposes a national colonisation council, consisting of twenty-four life-members appointed quite independently of the Government. This council has its say in every question regarding colonisation and allotment, and can control and superintend the whole working of colonising activity.

MEASURES TAKEN IN DEVELOPING THE CONGESTED DISTRICTS IN THE NORTH-EASTERN CARPATHIANS.

The origin of the State action to improve the economical and agricultural position of the mountain districts is to be traced to the year 1896. On the occasion of the consecration of some memorial works relating to the millenary existence of Hungary, some of our leading men both in public and social life, who visited the mountain districts, were struck by the backward state both in material and intellectual life of the inhabitants of those districts and the general poverty of the whole district. Those interested addressed, at the initiative of M. J. Firczák, Bishop of Munkács, a memorandum in March, 1897, to the Government, and on

this basis was commenced—by the fact that the Minister of Agriculture nominated Mr. E. Egan as his commissioner there—in the framework of the Agricultural Department, a more energetic state action, which—adapting itself to the special circumstances of the district—as “mountain district commission” is trying by continuous work on the spot to solve this problem.

After the death of Mr. E. Egan at the end of 1901 the lead was entrusted to Mr. J. Kazy, Councillor at the Ministry.

The action was commenced in October, 1897, as an experiment in the Szolyva district of the county of Bereg, and has been extended since 1899 successively to the mountain districts of the counties Bereg, Maramaros and Ung. In the estimates for 1903 the extension of the action to the counties of Zemplén, Ugocsa and Sáros was proclaimed.

The first thing to be done was to supply the dearth of arable land and pasture. With this view the Minister of Agriculture leased from the entailed estates of Count Schönborn a territory of an extent of 12,622 $\frac{192}{1600}$ holds in the Szolyva district together with the buildings, from the 1st day of October, 1897, for twenty-five years—with a proviso for giving up the lease at the end of the thirteenth year at discretion—at a yearly rent of 49,439 crowns 64 fillers.

The leased territories were in the first year sublet, as an experiment, only for one year, and only after the experiences of the first year were again sublet for eleven years. It was agreed with each of the farmers that they cannot transfer even partly their rights to anybody else. This precluded any speculation with the smallest part of the State lease.

The pastures and the high mountain pastures partly

on the sub-tenancy system, partly by lease to some of the neighbouring villages in whole, were improved. The former system proving by experience advantageous, since that time it has been favoured yearly to a greater extent on the high mountain pastures of State forests, especially in the county of Maramaros.

In the meantime it was felt necessary for the development of cattle breeding and for the security of the pastures to expand to the utmost limits the lease system. With this object the Minister of Agriculture leased a further territory of $2071\frac{220}{1600}$ holds in the Szolyva district of the county of Bereg, from the Count Schönborn estates, for a yearly rent of 2647 crowns 84 fillers, as well as 120 holds from the village of Zugó, at the yearly rent of 400 crowns, and so at the end of 1901 the Commission had already a lease of an extent of $14,783\frac{482}{1600}$ holds, at a yearly rent of 49,487 crowns 48 fillers, which was all repaid by sub-letting. The sub-tenants paid their rent—except an infinitesimally small quantity—with exemplary promptness.

These leases were supplemented in 1903 by a further $3052\frac{185}{1600}$ holds, which were obtained from the Count Schönborn estates for a yearly rent of 10,987 crowns 57 fillers, so that the extent of the land leased by the State is $17,835\frac{617}{1600}$ holds, and the whole yearly rent 59,475 crowns 4 fillers.

To supply a model for correct and rational farming on the leased land to the small farmer, the Minister of Agriculture organised in the Szolyva district of the county of Bereg, in 1898, and supplied with the requisite implements, three popular model farms. The practical usefulness of this institution being proved, further development is under preparation throughout the whole territory in selecting the opportune places.

It was urgent for the improvement of the quantity of crops, as well as to guard the population of some districts against starvation, to supply the population of the mountain districts with good seeds on favourable terms.

The Minister of Agriculture distributed during the spring of 1899, in 52 villages of the county of Bereg, 29,966 klg. oats, 3,000 klg. clover, 1,300 klg. fodder seed, 100,000 klg. potatoes, at a reduced price of 8,217 crowns 80 fillers; in the autumn of 1899, in 44 villages of the county of Bereg, 29,966 klg. wheat, and 50,578 klg. rye at a reduced price of 11,155 crowns 32 fillers. In the spring of 1900 were distributed in the counties of Bereg, Ung, Ugocsa, Màramaros, 47,901 klg. maize, 75,968 klg. oats, 515 klg. fodder seed, 4,622 klg. clover, 5,005 klg. rye, and 257,469 klg. potatoes, at a reduced price of 29,899 crowns 98 fillers. In the year 1902 were distributed in the flood devastated districts of the county of Màramaros, 21,000 klg. seeds at a rebate of 50 per cent. Besides this were distributed in the town Técsö, in the county of Màramaros, to renew the seeds, 16,000 klg. winter wheat and rye, at a rebate of 30 per cent. In the same year were distributed at the districts—damaged by misfortunes—of the county of Ugocsa, 50,000 klg. wheat seeds at a rebate of 50 per cent. In the spring of 1903 were distributed in the counties of Bereg, Ung, Ugocsa, and Màramaros, altogether 193,662 klg. of different seeds and potatoes, at a rebate of 30 per cent. under the purchase price, the potatoes being 20 crowns per ton; besides that, all the expenses of transport were paid by the Minister of Agriculture.

One of the principal conditions for the development of agriculture, chiefly in mountain districts, being cattle breeding, the Minister of Agriculture paid special attention to it from the beginning.

In the years 1897–1901 there were imported from Tyrol

altogether 476 pure bred Innthal bulls and 1521 heifers, and 41 bulls of the same breed were bought from inland breeders, and this breeding stock was distributed on advantageous terms in the mountain districts.

The beneficial result of this distribution was satisfactory. Up to the end of 1901 it was possible to buy back, from the new herd from the imported animals, 150 heifers, in spite of the fact that the females are mostly kept by the breeders.

The improvement of cattle breeding being exceedingly successful in the Tisza valley, in the county of Maramaros, it was decided to import and distribute there during the year 1903, 112 heifers of the larger size, Montafun bred.

The necessary sheds, houses, shelters and stalls—adapted to the requirements of high mountain pastures—were built on the mountains leased from the entail estates of Count Schönborn for the sum of 22,000 crowns, so that now the success of the mountain pasturing is assured, and valuable cattle stock can find in the high mountains some protection against the rigours of the climate.

These buildings serve at the same time as useful models, and the necessary buildings are successively under work on the high mountains of Maramaros.

The imported heifers, to secure fully their development, received, on the high mountains in the years 1899 and 1900, free pasturage.

The Minister of Agriculture paid attention to horse breeding besides cattle breeding, and two Lipizza stallions were brought from the Fogaras stud to the Szolyva farm of the mountain districts commission. These stallions being in great demand, later on another four stallions were placed in the mountain districts, so that now six of them are at the service of the small farmer.

Some provision was also made for sheep breeding. In

1900, as an experiment, there were distributed in the Szolyva district of the county of Bereg, 73 Raczka-bred sheep, and two breeding rams on advantageous terms, and six other rams free. This distribution showing good results, at the end of 1902 and the beginning of 1903 there was started the acquisition and distribution of 2000 Raczka-breed sheep, of which 800 are already distributed in the counties of Bereg and Maramaros.

The fruit growing, as is shown by the rich harvest and the resulting large income, holds a prominent position in the mountain districts, and this kind of cultivation is very promising. The mountain district commission also helped the farmers in this direction, in the first place by educating them in the methods of good marketing and looking for trade. In the county of Bereg some concessions were given to brewing spirit from prunes, and at some places were fitted up drying-apparatus—system Casenil. Nearly two-thirds of the whole mountain district being suitable to fruit growing, and the demand for fruit trees not being satisfied by the nurseries at Ungvar, a State nursery was organised on 25 holds on the leased farm at Szolyva.

The commission was not blind to the development of the hemp and flax cultivation, and took the necessary steps to introduce Mr. M. Deutsch from Bielitz to organise a factory for hemp and flax with State aid at Beregszász.

The Minister of Agriculture distributed, on the application of the commission, in exceptional cases, agricultural implements and bee-keeping tools amongst the small farmers.

Technical knowledge is the elementary condition of all agricultural progress, and therefore it was absolutely necessary to lay special stress on the diffusion of this knowledge in the mountain districts, in spite of the fact that the low intellectual level of the inhabitants pre-

sented great difficulty to the solution of this problem. The leaders of the people, being in most places the clergymen of the Greek Catholic Church, there were organised agricultural courses for them, partly to educate them, partly in the hope that they will propagate their knowledge amongst the people.

The first of these courses was organised in 1897 for the clergymen working in the Szolyva district of the county of Bereg. These courses were attended by twenty-two clergymen, and a great part of them made an excursion to Mr. Zürcher Herzog's high-mountain farm at Szaploneza, in the county of Maramaros, who moved there from Switzerland.

In 1903 the courses for clergymen and schoolmasters were held at the agricultural school at Rimaszombat, and the number of the pupils was twelve.

The Minister took steps to educate the youths of the mountain districts in high-mountain farming and dairying. In 1899, in the above-mentioned model farm of Mr. Zürcher Herzog, ten young men were educated at State cost, and in 1900 a further four. In 1902 to the dairy school at Sásvár were sent twelve young men, and in 1903, again, 8.

In 1903 was organised at Alsô Vereczke a special high-mountain model farm and dairy farm. The object of this farm is to educate the young men of the high mountain districts, not theoretically, but practically, in farming, and a further aim is to give a good example in high mountain farming according to actual conditions.

This farm is engaged in the handling and marketing of milk also, and the young men educated there have tuition in the dairy business.

For the objects of this farm were secured eighty-five holds from the land leased of the Count Schönborn's

estate, and at the same time they were secured on a full lease.

Twelve young men will be educated yearly on this farm.

It must be mentioned here that for the first time in 1899, 600 of the mountain districts labourers received employment from spring until autumn at the stud-farm of Mezöhegyes. This educates the people in systematic agricultural work, and at the same time supplies earnings, because at autumn generally each labourer brings back about 80–100 crowns savings from his earnings, thus securing his livelihood during winter.

The Minister of Agriculture provided for the winter employment of the mountain district people, arranging home industrial courses there, and supporting them. In 1901, in the county of Bereg, were held three courses of wood-carving and one of basket-making; in the county of Ung two courses for basket-making, straw and reed-weaving and brush-making; and in the county of Maramaros one course of basket-making was held with Government aid. The number of pupils of these courses varied, according to the extent of the district, from ten to forty. In 1902 there were held two basket-making courses in the county of Bereg, and two wood-carving courses in the county of Ung. Besides these, there were organised under the patronage of the Minister of Commerce, courses for home spinning in the mountain districts, he being responsible for all home industry courses not intimately connected with agriculture.

Eminently important, considering the conditions of the mountain districts, are the Cooperative Credit Societies and the cooperative stores in connection with them, particularly for checking the usurer's business. The cooperative societies are under the control of the

National Central Cooperative Society, to which they belong; but the Minister of Agriculture, owing to their importance for saving the people, granted considerable help to overcome the initial difficulties, particularly in starting distributive cooperative stores.

According to the report of the National Central Cooperative Society there were, at the end of 1902, in the county of Bereg, 29 cooperative credit societies, 4,173 members, and 5,540 shares; in the county of Ung, 16 societies, 3,602 members, 4,813 shares; in the county of Maramaros, 32 societies, 5503 members, and 7,099 shares. The value of these shares is 886,430 crowns.

The cooperative stores were organised in the county of Bereg at the start of this policy, with a central depôt at Szolyva, working in 17 affiliations, the yearly turnover being a quarter million of crowns. The successful working and results of these cooperative stores in the county of Bereg gave an impulse to the county of Ung, and there were established, too, the cooperative stores, with central depôt at Perecseny, working in ten affiliations, the majority of which are already in operation; and in the county of Maramaros, with a central depôt at Maramaros Sziget, working in 14 branches, and making substantial progress. The greatest part of the work in preparing and organising these cooperative stores was carried out by the mountain districts commission.

The commission was also busy in the marketing of the eggs, and in 1902-3 years ten of the cooperative societies resolved to share in this kind of business.

To propagate the knowledge necessary for managing the cooperative societies in 1900 at Maramaros Sziget, in 1902, at Ungvár, special courses were opened for the presidents and accountants of cooperative societies in book-keeping, and attended by 149 pupils.

The action of distributing maize is worthy of mention, which was carried on by the Mountain Districts Commission in the winter of 1902 and in the spring of 1903. The crop of 1902 being almost a complete failure owing to the early frost and floods in all the counties forming part of the mountain districts, all the population there had severe want facing them. To obviate this the Minister of Agriculture gave permission to the Mountain Districts Commission, to distribute sound and good maize to the extent of 4-5,000 tons amongst the mountain districts people, either for cash or on credit for one year at cost price, without counting the management and freight expenses. The Minister of Commerce allowed the carriage to be paid at his own expense.

So under this permission of the Minister of Agriculture there were distributed altogether 3,866 tons of maize at a price of 488,364 crowns 97 fillers. In the distribution nearly 36,000 families in 240 villages participated.

The Mountain Districts Commission cooperated besides in some measures dealing with the regulating of land registers, to enforce special measures against usurers, and all those questions which were connected with the economic improvement of the mountain districts; and gave every information and as far as possible, advice, to interested bodies and individuals.

Notwithstanding the fact that the Government action has been in work only a couple of years, there are visible signs of improvement, and in view of the fact that the general interest taken in its work is increasing, there can be no doubt that the beneficial results will be effective in a short time, if the work can be sustained with the present energy.

MEASURES TAKEN FOR IMPROVING THE ECONOMIC
CONDITIONS OF THE SZÉKELY LAND.

In later years ever louder and louder became the complaint placed before the public of the dangers which were menacing the Székely race, occupying the south-eastern corner of the country. These dangers were manifest chiefly by the numerous emigrations of the Székelys. Hence arose the fear that owing to this emigration weakening both in number and power the Székelys, the outer fortress of the Hungarian race would lose its power of resistance against the inroads of foreign races. Simultaneously came the examination of the causes. It was evident from the very first that the chief diseases were those of an economic character, and that, consequently, the cure rested mostly with economical improvement.

The active measures of assistance were begun by the Minister of Agriculture by the establishment in the Székely land of a special commission under the direction of a Commissioner at Marosvásárhely in 1902, providing him with sufficient staff, and securing in the estimates of 1902, 38,000 crowns for the special objects of the enterprise, this sum being increased in the estimates of 1903 to 200,000 crowns, and besides this amount a sum of nearly 70,000 crowns was voted to aid the establishment of cooperative societies in the Székely land.

The Székely land commission started work on the 1st of June, 1902.

The first object, after a full study of the economical condition of the Székely land, was to decide the ways and means of activity of the commission itself. The basis was founded, on the one side, after the journey of the Minister of Agriculture through the Székely land, when he had a

good opportunity, with the aid of experts and by personal intercourse with all classes of the population of the Székely land, to see the whole of the conditions prevailing there, and to arrange the leading lines of the policy to be pursued, and on the other side in the Székely Congress, held in August, 1902, at Tusnád, whose report was published by the Minister's aid and contained ideas and resolutions for forming a reliable basis for action.

In the meantime, besides the preliminary studies and arranging the programme, the commission actually started with the means at its disposal the actual work. In the first place, it sought close cooperation with the agricultural societies of Székely counties. And it secured that not only was the agricultural programme drawn up in cooperation with the agricultural societies, but also the permanent cooperation with the State action of the farmers grouped in those agricultural societies was secured.

On the proposition of the Commission, the Minister of Agriculture granted an aid of 2,400 crowns to every agricultural society on the Székely land for the employment of secretaries and experts in agriculture, and to carry out the work arranged. Through their secretaries the agricultural societies are now reliable cooperators in the works of the Székely Commission.

A further activity, and one undertaken at the very beginning, was in the improvement of the pasturage conditions of the Székely land. The Minister of Agriculture granted from the vote of 1902, 30,000 crowns to improve the pasture practically everywhere neglected, to start model pastures, and to supply implements on high mountain pasture farms, the money to be spent in buying implements necessary for the improvement of pastures, for grass seeds, and for building stables. Besides this, agricultural experts drew up a list of the work to be

executed, giving at the same time advice on systematic high mountain farming.

Thus will be started in this year in the four Székely counties, in the twenty-one pastures of common proprietorship the works, which are already arranged in detail, for the improvement of pasturage.

Beside this, the Commission carried out in many cases experiments to induce, by giving aid, the villages which had none, to acquire common pasturage. These attempts, however, up to the present time have been unsuccessful.

In connection with this the improvement of cattle breeding in the Székely land was taken in hand in another direction. There were distributed to improve the sheep breeding, which had shown a decrease in late years, to 258 small farmers of seven villages of the county of Udvarhely, 940; to 91 small farmers of five villages in the county of Haromszek, 998; and to 179 small farmers of three villages of the county of Csik, 408 sheep, on advantageous prices and conditions, so as to enable small farmers, who had shares in the common pastures, but had not live stock, and so being able to use it, to improve by their sheep their lands. But by the distribution of sheep attention was drawn to the interests of cheese-making in the Székely land, in order to develop later with the increase of the sheep the flourishing cheese-making, and, therefore, the marketing of the milk there.

At the same time, to foster live stock-breeding, the Minister of Agriculture granted a sum of 100,000 crowns for the Székely policy, to buy from reliable Transylvanian breeders Hungarian bred heifers and cows for distribution on advantageous terms to small farmers. Up to the present time there have been distributed to 157 small farmers of ten villages 274 heifers and cows, which will

certainly add to the fame of the remarkably valuable Transylvanian Hungarian stock bred in these villages.

The most effective method, however, was utilised in the first year of the Commission. Cattle-breeding in the Székely land was helped by giving a further reduction of 30 per cent. to the rebate generally in vogue of 20 per cent. in the distribution of bulls for common breeding to villages, which were unable to buy by any other means serviceable bulls. By this aid in the first year of the Commission, 60 poor villages were supplied with good breeding bulls, in places where the common breeding up to the time had been almost lacking in the supply.

Besides this, for the improvement of Székely land at Sepsí Szent György, a cattle-breeding inspector was appointed, and steps were taken towards appointing another.

For the improvement of horse-breeding the Commission has not been able up to the present time to do more than organise, by the aid of the Minister of Agriculture, a stallion station, make grants for starting two foal pastures, and prepare the start of more stallion stations and foal pastures, and secure for distribution amongst the small farmers of the county of Udvarhely those mares, which were sold from the remounts of the army in Transylvania this year.

The Commission tried to foster the poultry industry chiefly by distributing full bred birds and starting four model poultry farms at the cost of State, the final arrangements for which are being made now. Experiments were made to improve the poultry by distributing eggs of a better breed. This experiment was, however, unsuccessful.

The improvement of plant growing was started by special measures. At the request of the Székely Commission the Minister of Agriculture granted ten waggon loads

of wheat and rye for seeds, to be distributed on very advantageous terms, in order to renew and improve the seeds of the small farmers. Besides this there were granted good agricultural tools and implements for the common use of the farmers' club, in order to diffuse the knowledge of their use and to give the small farmers a chance of sharing in their advantages.

For fostering viticulture the leading point was this, that the reconstruction should be started in the county of Maros Torda, before the total devastation of the vineyards infected by the phylloxera. With this view, there were started model farms to encourage acquaintance with the new American cultivation, and during the last autumn there were distributed a great quantity of grafted, as well as of wild stocks, to the small farmers. The Minister of Agriculture sent a foreman to the viticultural labourers of the Székely Commission, who gives every expert advice regarding the cultivation and reconstruction of vineyards.

To foster hop-growing, the starting of a model hop farm at Maros Vásárhely in cooperation with the Agricultural Society of the county of Maros Torda is now being proceeded with, the scope being experimentation in growing and plant breeding.

For the extension of the widely popular flax culture on the Székely land a large quantity of flax seeds was distributed in the spring of 1903 to the small farmers of the Székely land, and it is intended to distribute a still larger quantity next year. In order to develop the cultivation of vegetables, which is very much neglected in the Székely land, the Commission proposed to organise market gardening at Csikszereda, Gyergyó Szárhegy, Székely, Keresztur, and Szováta on the Bulgarian model; in this respect the preliminary studies are going on. In the interests of fruit tree planting the Commission encouraged

the experiment by the village of Felső-ràkos of using its common land of 25 holds as an orchard, and in the current autumn made successful efforts in the marketing of the apple crops, receiving drying machines and brewing apparatus from the Minister of Agriculture for utilising the superfluous crops, and helped the fruit preserving colony on the high mountains at Borszek by an aid granted from the Minister, to enlarge the colony's business to a considerable extent for the current year.

The Commission urged tree planting on the national highways, the tree planting being started this year, to be added to and completed next year.

In the interest of the home industry the Székely Commission developed activity in different ways. Thus in order to acquaint the public with the objects produced now by home industry, it participated in the Christmas bazaars organised at Arad and Debreczen, and looked for marketing connections in the interests of the fen and wood products of the Székely land. It organised at Marosvásàrhely a farm for straw-plaiting, and prepared fully the organisation of two other such courses.

On behalf of labourers the work of the Székely Commission consisted of carrying miners from the neighbourhood of Parajd to the coal-mines of the general coal-mines at Tata, made agreements for the viticultural works to be done at the State farms at Marosludas by the Székely labourers, further prepared a bureau for exchange of labourers for the whole Székely land.

The Commission being desirous to increase the attention paid by the Minister of Agriculture to the extension of the agricultural education, proposed to develop the higher elementary agricultural school at Csikszereda to an agricultural school. This matter is still in course of negotiation.

With regard to the organisation of cooperative societies attention was paid to the fact that the sum of 70,000 crowns granted by the Minister of Agriculture in aid to 30 cooperative societies on the Székely land, could be used for starting productive cooperative societies in connection with the cooperative credit societies. The organisation of these societies is now being carried out with the cooperation of the committee.

One of the remarkable actions of the Commission is that which deals with the preparation of the upper part of the Maros river for navigation. The plans and preliminary studies relating thereto are now being dealt with.

An extra work was effected by the Commission in the direction of gathering detailed statistical accounts of the land tenure in the Székely land, with special attention to commassation, which is very important there; it was engaged also in forestry, working out a detailed plan for forestry, especially regarding those urgent questions connected with varied cultivation; in several memoranda proposed detailed measures for regulating both mortgage and personal credit system; and the head of the Commission succeeded by his energetic action in removing the danger, which in consequence of the depressed situation of the savings bank at Marosvásárhely, caused by the run on deposits, was threatening to the whole population of the neighbourhood. It pointed out several times the desirability of improvement in communication, especially on the absolute necessity of the building of the Székely railways; initiated several negotiations to start factories on the Székely land; and made special studies regarding the iron mines.

The Commission arranged further a detailed programme to facilitate the re-emigration of the Hungarian

citizens living in Roumania, their distribution at home, and their protection during their stay there.

Besides all these, the Commission, in co-operation with the Székely societies, worked successfully for the encouragement of tourists, aided societies working in the interest of the Székely land, made possible by the help of the Minister of Agriculture the publication of two books on the watering places of the Székely land, promoted the cooperation of the Székely watering places, telephone communication with Borszék, and prepared the building of a network of telephone communication in all the watering places; collected samples of all the mineral waters and minerals; and urged the developing of the Székely industrial museum at Marosvásárhely to an industry-promoting institute. All the endeavours to improve the economical conditions of the Székely land are represented, and seek realisation in the Commission, and the roots planted for this object are daily strengthening in the economical life of the Székely land, so that there can be no doubt of its importance and probable success. There is scarcely any economical interest in the Székely land which was left out of consideration, and it is the conviction of public opinion, that the strong development of this action will result in the long desired progress and surety of the economical improvement in the Székely land.

AGRICULTURAL LABOURERS.

The agricultural crisis, which sprang from the general decrease in the prices of agricultural produce, owing to American competition, has been prevalent since the 'seventies throughout the agricultural industry in Hungary, and has been acutely felt by the agricultural labourers.

This depression was increased by a combination of circumstances, unfavourable from the agricultural labourer's point of view. In the first place, for example, following a scarcity of agricultural labour for more than a decade, a great quantity of labour-saving agricultural machinery was introduced, and at the same time there were finished the great works against the pollution of rivers, which provided work for a large number of labourers at good wages.

The demand for labour being thus greatly decreased, and the supply proportionally increased, the wages and earnings of the agricultural labourers were greatly reduced, and dissatisfaction with their circumstances, also artificially fermented, reached at the beginning of the 'nineties such a point that in more than one place on the plains disturbances took place, and the forces of disorder steadily became increasingly dangerous to the existing order of society.

These complications led the Department to study more closely the circumstances of agricultural labourers. The section for agricultural statistics began in 1891 annually to collect and publish particulars of agricultural wages. But until the middle of the 'nineties nothing further than study was done in this direction.

The Department, seeing the great importance from the point of view of agricultural production of improving the circumstances of the labourer, and knowing the great responsibility, both politically and socially, which any steps involved, decided to treat the whole question fundamentally, and not to be satisfied with any temporary measure. The aim was on the one hand to secure those weighty political and economic interests attaching to the agricultural industry, and on the other hand to help the agricultural labourers, satisfy their true interests, and

thus to prevent the expansion of the Socialistic movement.

The plan was to begin with labour bureaux, by which it was hoped to level up the differences between demand and supply. In this interest steps were first taken in 1896 to establish, with the cooperation of the County Councils, a list of those requiring labour and of labourers in each county. This list, when completed, showed that in most parts of the country there was a dearth of labourers, but that in some parts of the lowlands, between the Danube and the Theiss, there were labourers in plenty.

Simultaneously the Department promoted a Bill to modify Act XIII. of 1876. According to this Act, the relations between farmers and labourers were fixed on the same lines as the relations between farmers and farm servants, and all the representative public bodies, both of employers and employed, urged some modification of this. For this and other purposes the Department was obliged to start a new section for matters connected with agricultural labour.

The promotion of reforms was, however, suddenly put a stop to by a great strike of the harvest labourers in 1897.

Since the abolition of the feudal system and the simultaneous employment of free labour, it has periodically happened, especially in the lowlands, that some agricultural labourers contracting for harvest labour refused to fulfil their obligations, and began work only when the farmers, in the absolute impossibility of doing otherwise, the harvest time having arrived, made better conditions. But in all these cases, both farmers and labourers finding some means of agreement, the dispute arising from the fixing of wages had no serious economic consequences.

In the winter of 1896 and the following spring, however, the leaders of the Social Democratic Party introduced a new campaign, with the object of inducing the labourers to refuse systematically to carry out their contracts. To secure success the leaders held an agricultural labourers' congress at Budapest, on January 31st and February 1st and 2nd, at which resolutions were passed pledging themselves to form working men's clubs, or secret societies as they eventually proved, with the object of obtaining better wages by refusing to fulfil their agreed contracts.

This open agitation the public authorities were able in most places to suppress, but the labourers continued their organisation secretly in family or social circles, which it was impossible to control.

The Department, aware of what was going on, endeavoured on the one hand to counterbalance it, and on the other hand took the precautions necessary to prevent the danger of a strike at harvest time, and to secure public order.

Some time before harvest there were many signs in the lowland counties that the great majority of the agricultural labourers were determined, not only to repudiate their obligations, but to hinder the harvesters coming from other districts to do the work, and to repel them by threats. At the same time there were serious disturbances, so that the intervention of the public authorities became absolutely necessary to secure public order.

Seeing that there was no hope of getting in the harvest without serious disturbances, the Home Secretary, in conjunction with the Department of Agriculture, took far-reaching measures for securing from molestation and threats labourers, either local men or strangers, who were willing to work. With this object the police were

strengthened in the respective counties, and a military force was sent to the places considered to be the most exposed to disorder.

Under an order from the Home Secretary the county magistrates were freed during the harvest time from any other duty, in order to be able to give all their time and attention to the matter, and to arbitrate on any question arising between employers and employed without delay.

The labourers were shown that a harvest strike would be even more serious for the labourers than the farmers, because the farmers, having gained the assistance of strangers, would be unwilling to return to the local labourers.

The Department called all the County Agricultural Societies to a meeting on June 16th, 1897, to discuss the eventualities, and to obtain a clear view of the situation.

Two weeks before the beginning of the harvest it was evident that the organisation of the labourers in some counties was so strong, their readiness and preparation for strikes so serious, that any measures of a political kind would not be sufficient to meet the necessities of the case.

To fill the positions of labourers who might not carry out their duties, the Department drew up a list of the labourers in those parts of the country where contracts were made, and from them formed a reserve held in readiness near the places threatened by the strike; but on a neutral ground on the State estate at Mezöhegyes, which is exactly the centre of the lowlands. These reserve labourers were selected by the stewards of the State farms, and were protected during their journey there by every possible safeguard. The Department took precautions to be able to supply these labourers at the shortest notice to

the farmers who were menaced by the strike, and to supply a fresh quantity if required.

In order that both the employer and employed should not be led into the belief that these measures, which were dictated exclusively by the common economical interests, were undertaken for the sake of employer against employed, the Department issued a permanent order to be obeyed when the reserve labour was requisitioned.

It was decreed that, in the first place, only those farmers could get labourers from these reserves who had retained previously sufficient harvest labourers for their work, and such labourers—without the fault of the farmer—refused to fulfil their obligations, and the legal measures proved unsuccessful, so that they were unable locally, or in the neighbourhood, to obtain labourers on such conditions and wages as was the custom of their district.

The farmers were obliged to pay the wages of the reserve labourers from the day following their leaving Mezöhegyes, and supply them with sufficient food. The wages were fixed daily for harvesting at three, and for binding at two crowns. To facilitate any arrangement regarding these reserves, a telephone was established between Budapest and Mezöhegyes.

The Department had a further reserve at its disposal in the forestry labourers on the State forests, who were also held in readiness; and a still further reserve in case of special emergency was the supply of such prisoners as could be safely engaged at Mezöhegyes in some farming work, thus allowing the ordinary labourers there to go out to farms exposed to the strikes.

Precautions were taken by the Department of Commerce with the view to supply these labourers at the quickest notice, and as a last resource, by extra trains.

The result was, that in those districts where the reserve

labourers settled, and still more in the neighbourhood of Mezöhegyes, the labourers, seeing their presence, decided to reverse their policy and fulfil their contracts.

The strike was opened at the beginning of the harvest on the first day in two counties, Jász-Nagy Kiskun Szolnok and Bihar. In the county of Békés, in three different districts the labourers refused to fulfil their engagement. The Department sent out reserve labourers immediately to any place where the legal procedure to enforce the fulfilment of the engagements proved useless. This weakened the strength of the strike movement ; as a rule the arrival of "reserves" broke up the opposition, and the labourers returned to their contract.

Most of the danger was concentrated in the four counties of Csongrád, Bács-Bodrog, Pest-Pilis-Solt-Kiskun, and Fejér ; indeed, in the county of Csongrád, nearly all the harvest labourers joined the strike. In their place the Department sent an equivalent number of newly colonised labourers from the Lower Danube, where the crops annihilated by the spring floods had deprived them of means of livelihood, and some reserve labourers from Mezöhegyes. In the county of Bács-Bodrog, the strike organisation was in two districts very powerful, and the feeling of the labourers showed signs of strong excitement. The prompt measures taken by the public authorities were, however, sufficient to give full security to the public. The arrival on the very first day of the strike of a sufficient number of reserve labourers to help the farmers left without hands, worked for public peace : yet the disputes were renewed daily, the danger of a general strike ever at hand, the help of authorities ever necessary.

In the county of Pest and Fejér the strike came later than in the lowlands, but the reserve at Mezöhegyes, being

always able to send the hands required, succeeded here also in securing the fulfilment of contracts.

To show the extent of the strike movement and how much work was required to execute all those measures for the restoring of affairs to the normal level, the following numbers are very instructive:—

From the reserve at Mezöhegyes were sent out: 2150 harvest labourers.

From the reserve at other places were sent out: 3567 harvest labourers.

More than 4,000 more labourers held in readiness in different places were not required at all.

During the strike in some places the employers were obliged to make new agreements with the labourers by granting higher wages than before. They were, however, not forced to satisfy exorbitant demands, because of the reserves; and the knowledge of these reserves placed great moderation on the demands of the strikers, who were almost willing to work on the old terms.

This movement of the agricultural labourers, however, had the effect that public opinion anxiously demanded, that the Legislature should take steps to prevent any further stoppage in agricultural work. It being evident that the unsatisfactory working of the Act (XIII.) of 1876 was partly responsible for the strike, the old agitation to alter it came into life again. The facts of the 1897 strike supplied valuable experience and led to a Bill being prepared to regulate the relations between employers and agricultural labourers, and to amend the XIII. of 1876. It was passed as the 2nd Act of 1898.

Of course the Socialistic party was anxious to misrepresent the tendency of this Bill, and as the interests in question were very serious and extensive, it was evidently urgent and necessary to educate all those

interested in it. Several pamphlets were issued, and several popular lectures were held. Parallel with this education, the avowed object of which was to educate and tranquillise the labourers, and the result of which was that the working of the Act was introduced without any special difficulty, there were issued the necessary by-laws and minutes. A special pamphlet was sent out to all the administrative bodies and authorities long before the Act was put into force.

The Department sent out according to the Act, to the authorities duly authorised to issue them, certificates for agricultural labourers, and in 1898, the first year of the working of the Act, 1,301,910 copies. The issue of the certificates by the local authorities was so satisfactory that there were only two complaints all over the country in this respect. All the local authorities, cooperating heartily with the local agricultural societies, rendered a very useful service to the public interest.

The Socialistic party agitating against the Act made attempts to organise the agricultural labourers for a new strike in 1898. All the agricultural labourers being very much annoyed by the certificate-system, made real preparations again for a strike in the harvest-time, but the labour bureaux and the renewal and repetition this year on a still larger scale of the system of reserve labourers effected very good results, and the harvest was gathered all over the country in absolute tranquillity.

The interchange of labourers was carried out in this manner: the county councils requested the parish councils to draw up a list of those labourers who were willing to do harvest-work at another district, and who were unable to find any employment in their own district and who could be withdrawn without affecting its needs. The parish councils were also to furnish names of those farmers

in want of labourers and send both lists directly to the labour-section of the Department, which was obliged to give advice both to farmers and labourers. The result was thoroughly satisfactory; every farmer found labourers, and every labourer got employment.

To be safeguarded against any emergency, there were reserves in readiness during all the harvest; at Mezöhegyes 3,000, Kis-Bér 8,000, Bâbolna 500, and Szolyva 1,000 labourers, and all those labourers in the northern part of the country who were available for harvest labour in the lowlands, their own harvest being later in the season, were also in readiness. The policy pursued was practically the same as before. From this reserve only those farmers could obtain a supply who had engaged labourers for the harvest, and such labourers without the fault of the farmer refused to work; and he was obliged to prove that any steps taken by the local authorities to force the labourers to fulfil their contracts were unsuccessful, and, further, that he was unable to get locally or in his district labourers on conditions and wages paid by his neighbours or in the district generally. When the local police authority is satisfied on these points, and the employer pledges himself to pay the wages and travelling expenses of the labourers and accept the arbitration of the Minister of Agriculture in case of dispute, the Department who have the control send the reserve labourers immediately.

The conditions for these reserve labourers were fixed by the Department. Generally they are lent in gangs of at least forty to fifty for three or five weeks. The farmers are charged with the fares and wages. Besides the wages (1 cr. 60 f.—2 cr. 40 f. for harvesters, 1 cr.—1 cr. 60 f. for binders) there were provided living-rooms and board. The minimum of board is fixed for a couple per

day, in kilogramme (= 2·12 pound), $\frac{1}{2}$ klgr. wheat flour, 1 klgr. rye flour, 1 klgr. barley flour, $\frac{1}{2}$ klgr. vegetable, $\frac{1}{16}$ klgr. salt (instead of lard $6\frac{2}{3}$ filler), all per day, 1·12 klgr. meal and $\frac{1}{2}$ klgr. meat per week, and daily $\frac{1}{4}$ or $\frac{1}{5}$ litre of brandy; fuel and water included. All these are to be paid to the trustee of the Department.

The result was that during 1898 there were no serious difficulties in the harvest time.

The other side of the question before the Department was to protect the interests of the labourers. The Department since 1898 established free popular libraries for the labourers, and encouraged their friendly and cooperative associations. A great effort was made to educate the working classes, and all the authorities were required to encourage the clergymen, schoolmasters, and all those in direct touch with the agricultural labourers, in benevolent activities. From a grant voted on this account were rewarded numerous clergymen and schoolmasters, and, where it was required, these activities were helped both morally and materially. With this idea there were started several clubs, associations, cooperative and friendly societies, reading-rooms, and several pamphlets were published and distributed. There were founded by the Department, for those farm servants and labourers, who had a good record for long service on one farm, prizes and rewards. This was done to counterbalance the Socialistic influences.

The good results of these endeavours were apparent even in the next year. In 1899 relations were much easier on all the farms than formerly. During the winter and spring there were in many places signs of the movement, but all of them of local character and without serious results. The engagements for the harvest were on the usual lines and were kept. But not being quite sure that order was fully restored, the reserve was formed

again, 2,000 labourers being held in readiness on the State farms, and 2,000 more in other places in readiness under exactly the same conditions as before, but they were not in a single case required. The interchange of labourers also was carried out by a section of the Department in exactly the same manner as in former years.

Acting on clause 77 of the (II.) Act of 1898, which gives it power to make by-laws for organising the agricultural labour market, the Department issued an order in February 1900. The principal points of this order are as follows. Each borough or parish is obliged to nominate a person who must keep satisfactorily a list of employers and employed, so that the local supply and demand can be easily ascertained. He must also answer any question concerning the list, and reply to any question in letters, telegrams, or by telephone. If there is a surplus in supply or demand, he is required to report to the county council, or the person nominated for this purpose by the county, who receives his salary from the Department. He is in permanent communication with the neighbouring counties and with his own parishes, and reports are sent and received weekly. This is to balance the supply and demand locally, and it is used as a check in the migration of labourers. The reports are also sent to the Department, which is the highest labour bureau, and gives information to everybody. The system works easily, quickly, and is cheap. The Department of Commerce issued an order to facilitate the conveyance of labourers, whose fares—on the production of their certificate—are reduced for the places of their work and their homes by 50 per cent.

Some special Acts have been passed in late years for the benefit of the agricultural labourers. One in 1899 (XLI.) regulates the relations of those labourers employed on

water, road, and railway works ; another (XLII.) regulates the occasional contracts of work ; in 1900 (XXVIII.) protects labourers in forestry, (XXIX.) tobacco gardeners. All these Acts are founded on the principal (II.) Act of 1898, through the wish to apply its principles to the special requirements of labourers engaged in special work.

There was no difficulty at all observed in the working of these Acts, owing to the fact that experience showed clearly to the working classes that the agitation against the principal Act was without foundation ; the Act, instead of being harmful, was really beneficial to the respectable and reliable working men ; so they cooperated heartily in the working of the new reforms. There were issued, owing to the special nature of their trade, special certificates for the tobacco gardeners ; in their certificates a place being reserved to insert the quantities produced by them, as required under the Act. Up to the present time there have been issued 29,121 certificates for tobacco gardeners.

The great interests involved in the undisturbed working of the agricultural system being secured, the next step of the Department was to improve the condition of agricultural labourers. To this end care was taken to fulfil religiously the intentions of the various Acts for protecting the interests of labourers, and then to foster the designs for encouraging the establishment of working-men's clubs, libraries, and friendly and co-operative societies. A popular weekly paper was started to foster their livelihood and education, and controls the establishment, by county by-law, of the parochial relief funds provided in the Act.

There are at present 1,068 free libraries for working men in the counties. The popular weekly paper steadily increases its circulation, and is published in the different languages used by the agricultural labourers.

The copies issued were :

	Hungarian.	Slav.	German.	Roumanian.	Servian.	Ruthenian.
1897 .	12,648	12,736	1,517	2,283	—	—
1898 .	17,312	12,872	2,492	2,692	862	833
1899 .	18,487	13,441	3,545	2,999	1,007	1,034
1900 .	18,325	14,005	3,357	3,082	962	1,060
1901 .	19,534	15,197	3,108	3,138	848	1,185
1902 .	30,460	18,105	5,030	4,450	2,080	1,620

The relief funds are organised in sixty-four counties and boroughs. To establish and strengthen these funds the Department has given, up to the present, grants amounting to 546,600 crowns. The aim is to help immediate distress and temporarily disabled workmen.

In the competition for long and good services prizes, 1,279 servants and labourers received the public rewards, together with diplomas from the State, as a permanent record of their fidelity and devotion towards the community, and of their recognition by the State.

Four hundred such diplomas are distributed yearly, and the result is a certain proof that the distribution elevates the moral character of farm servants and labourers. Of this number 273 servants were in continual service at the same farms over forty years.

Seventy-two rewards were distributed between those parish councillors, clergymen, schoolmasters, and surgeons, who performed valuable services to agricultural labourers.

To brighten the monotonous life of agricultural labourers and strengthen the ties between employees and employers, by a circular in 1899, the Minister of Agriculture asked the agricultural societies to start again the harvest feasts; and the advice is followed yearly by greater numbers, the result being the increased interest of farmer and labourer in each other.

For purposes connected with the agricultural labourers,

from the grant voted, the Department expended since 1898 not less than 1,580,000 crowns.

Lastly, the Minister introduced a Bill for insurance against accidents and old age for the agricultural labourers and servants. This passed in (XVI.) Act of Parliament 1900, and began its work on the 15th of January 1901. Under this Act the fund assists any labourer thrown out of work through accident, and who is a member of it for at least ten consecutive years, and also in cases of infirmity and old age. If, by accident, he loses more than a week, besides the expenses of the doctor and medicine, he receives daily one crown, but only during a period of sixty days. If the accident ends in death his family receive 100 crowns for burial expenses. A disabled labourer receives monthly ten crowns, and when sixty-five years old receives, besides the other allowances, 100 crowns extra. If he dies a natural death his family get an allowance of 200—270 crowns. The employers are bound to pay for each servant employed yearly 1.20 crowns into the fund; the membership of other labourers is voluntary.

The interest taken by the farm servants and labourers in this fund was very great, and the results of the working of the Act were, in the first three half-years, so favourable that it was decided to proceed further in the matter by the (XIV.) Act of 1902.

This Act amends the present institution in five ways.

1. It allows the members to have more than the old limit of ten shares, and, of course, secures the corresponding advantages; the members are not bound all their life, but only during twenty-five years, to pay their premiums; if the member dies or is disabled in the first seven years, all sums paid are returned; if anyone pays in his premiums for extra years, all those years are reckoned in his favour;

and, lastly, in case of permanent sickness, the managers of the fund are empowered to give an extraordinary allowance up to 300 crowns; 2. There are instituted two new sections in the clauses; the first, popularly called "for burial," to secure those expenses by yearly payments of 2.60 crowns up to 60—200 crowns, according to the age; the other, called endowment, by yearly 5.20 annuities, to obtain a subsidy of 65—215 crowns; 3. Encourages employers to pay the servants' or labourers' premiums; if he does so out of his own pocket, the corresponding benefits are acquired by the servant only in case he has completed the tenth year in the service or becomes disabled or dies before this date; if the servant leaves his service before ten years the sums paid in by his employer only in such case are credited to the servant, if he refunds them on a yearly decreasing scale fixed by the fund; 4. The Act makes obligatory the insurance of those employed at threshing and cutting machines; 5. The management of the dissolved burial and endowment societies is transferred to the fund.

All this was ordered by the Act to insure the utmost advantage possible in all these branches to the members of the fund, to make it absolutely correspond to the requirements of the often penniless labourers and servants, as well as to those of the small farmers, it being a certain fact that the fund cannot develop an agency really beneficial unless its working is extended to every class of the agricultural population.

It is evident that this step was a success. In 1902, the second year of its working, the number of members was nearly four times as many as in the first year.

The whole number of members were in Class I., 19,200; II., 3,886; III., 173; IV., 1,827; extraordinary members 40,377; altogether 65,463. It must be remarked that

there is a continual increase in the extraordinary members, who are admitted each year.

Up to the 15th of October, 1903, 248 employers insured 5,386 servants.

Agreements were made to insure agricultural machine workers—in 1902, 3,158; 1903, 5,413.

Besides these, according to the Act, nearly 400,000 agricultural servants enjoy the general advantages of the Act.

AGRICULTURAL EXPERIMENTAL AND RESEARCH STATIONS.

The profitableness of agricultural production is the great problem for a whole series of scientific researches, and undoubtedly the solution is becoming more dependent on the special studies in those branches of knowledge which relate to the increasing of crops, decreasing of cost, insurance against damage, &c.

Hungary participated for a long period in a very imperfect manner in the development of branches of knowledge of a scientific kind but of strikingly practical tendencies, in spite of the fact that there is scarcely to be named a country which could find such a development more useful than our agriculturist country. The nursing and development of the science of agriculture found place, to all intents and purposes, only in the educational institutes, which merely taught the ordinary curriculum, and did not pay special attention to agriculture for practical development.

This second duty, viz., the development of technical agricultural knowledge and the scientific handling of agriculture in all its branches, is the duty of those specific

institutions which keep practical aims in view. The experimental stations, which carry out experiments for the progress of scientific agriculture and fulfil clearing and controlling examinations to protect the interests of agriculture, are very much indebted to the foreign experimental stations.

These stations did not develop in a manner required for our country. The number of the problems to be solved continually increased, and the Minister of Agriculture has been obliged in the last six years not only to largely develop the existing stations, but to start new ones.

Before 1897 there were in existence the following experimental and scientific institutions, all run at the cost of the State :—

1. Geological institute at Budapest.
 2. National institute for meteorology and magnetism at Budapest.
 3. National chemical institute and central chemical experimental station at Budapest.
 4. Bacteriological institute at Budapest.
 5. Agricultural experimental chemical stations at Debreczen, Kassa, Keszthely, Kolozsvár, and Magyaróvár.
 6. Seed-testing stations at Budapest, Debreczen, Kassa, Keszthely, and Magyaróvár.
 7. Experimental station for plant-breeding at Magyaróvár.
 8. Experimental station for agricultural implements at Budapest.
 9. Entomological station at Budapest.
- Since that date, besides the further development of the above, there have been started by the State :—
10. Agricultural museum at Budapest.
 11. An experimental station for tobacco-growing at Debreczen.

12. Station for plant physiology and pathology at Magyaróvár.
13. Experimental station for biology and feeding of cattle at Budapest.
14. Station for testing wool at Budapest.
15. Experimental chemical station at Fiume.
16. Central ornithological station at Budapest.
17. Experimental station for spirits at Kassa.
18. Experimental station for dairy work at Magyaróvár.

But these do not exhaust the series of experimental stations. There is already in the course of establishment an experimental station in dairying at Magyaróvár, and the erection there of a new building for an experimental chemical station is in process; we are also starting experiments in growing fodder.

The great difficulty in making experiments on a larger scale is due to the fact that these institutes are only temporarily housed. Consequently, the chief aim of the Department is to set up permanent establishments.

Besides this new development it was necessary to start a council to advise in everything connected with the special matters relating to experimental stations. To meet this demand in 1897 was established the Departmental Central Committee for agricultural experiments, in which all branches of agricultural experiments are represented.

The purposes of this committee are to encourage, control, and direct in harmonious working the experimental stations, to order all those experiments which are necessary in the public interest, and to advise the Minister of Agriculture in developing the experimental stations, as well as publish the results. The publishing is done by the *Kísérletügyi Közlemények* (Leaflets on Experiments),

a periodical published in pamphlet form since 1898, and distributed freely to scientific associations, agricultural clubs, and some pre-eminent scholars. There were published in 1898-1902 altogether twenty-eight pamphlets containing 161 independent treatises.

The following is a short account of the institutions, &c., dealing with their history and purpose.

The Geological Institute at Budapest studies the geological relations and stratas of Hungary; its section for agronomy-geology studies the soil in relation to agriculture, and the mineralogical and hydrogeological section, supplied with a special chemical laboratory for research in mineralogy and strata, publishes separate annual reports and maps. This institution was formerly placed in the building of the Ministry itself, but being hampered by lack of room, in 1899 migrated to a new home, which was built on ground given free by the Municipality of Budapest, and erected at a cost of 900,000 crowns, given by the State, this sum including the 100,000 crowns given by the eminent patron of the institution, Mr. Andrew Semsey, himself a prominent geologist. This home is equipped according to the latest requirements of modern science.

The National Institute for Meteorology and Magnetism at Budapest studies and publishes the climatological and meteorological relations of the country.

In the first twenty years of its existence the institute was much hampered by the poverty of its resources. The Count Andrew Bethlen, the then Minister of Agriculture, recognising the close connection between his charge and institutes of both agricultural and hydro-technical order, after long transactions with the Department of Education took this institute in 1893 under the charge of the Department of Agriculture, and since that

time, equipped by sufficient grants and launching out on new lines, its development and success have been secured. The new by-laws were sanctioned by his Majesty in October, 1896. It was not possible to thoroughly utilise the meteorological section for the interests of agriculture before this reform was made. A special telegraph office was appointed, and now, by means of telegrams received both from foreign meteorological stations and from home observations, the institute draws up the "Meteorological Prognosis," which contains the meteorological charts in tabular form, showing both the present state of the meteorological factors and the weather forecast for next day; this report is published daily in 200 copies for institutes, observatories, the daily press, and subscribers.

To publish more widely and with smartness the forecast, it is communicated daily to certain telegraph stations in circular telegrams, and those offices are bound to mark on tables specially drawn up for this purpose the forecast for the next day.

Following the development of the institution in 1891, only 150; but in 1900 already 318 telegraph offices were provided with these forecasts. Since the knowledge of the exact quantity of rainfall was very important for the river control and floods, the meteorological institute established, at the request of the hydrographical section of the Department of Agriculture, in the basins of the more important rivers a whole system of rain-gauges. This system was established for the first time on the Tisza River and its tributaries, but later was extended successively to the basins of the Danube and Dráva, as well as to the Bodrog and Körös-Maros. The system was strengthened with—in 1897, 24; 1898, 91; 1899, 156; 1900, 148; in 1901, 163; and in 1902, 190 new ombrometrical stations.

The climatological section of the institute makes

provision for keeping in order the observatory's stations, works up the material of the observations, and publishes the results in the year-books of the institute in a manner internationally prescribed. Between the years 1890–1900 18 volumes were published, in 1901 five more. The growth of the stations for observation was as follows :

	2nd class.	3rd class.	4th class.	Altogether.
There were in 1890 . . .	92	30	215	337 stations.
„ „ 1895 . . .	80	36	306	422 „
„ „ 1900 . . .	93	53	619	765 „
„ „ 1901 . . .	90	60	797	947 „
„ „ 1902 . . .	95	62	973	1,130 „

Fourteen stations were partially equipped with automatic recorders, so as to record any variations of the respective meteorological elements.

The institute took up the matter, in 1899, of protection against gales, and a member of the institute cooperated in this year in 5 parishes and 2 State farms ; in 1900 in 19 parishes, 4 boroughs, 1 State farm, 5 private estates ; in 1901 in 22 different places in establishing the various lines.

Meteorological science, however, had no abode in this country, in spite of the fact, that the institute was alive to the necessity of an observatory for meteorology and magnetism. The director of the institute had in his private park at ÓGyalla an observatory, which was, however, supported only by his private means, and therefore could not fully deal with the necessities of the case. For this reason Parliament voted in 1899 a sum of 101,200 crowns to build an observatory for meteorology and magnetism, on ground granted by the director of the observatory in ÓGyalla. This observatory was ready in 1900, and equipped and began to work on 30th September.

Besides the meteorological observations it makes absolute magnetical surveys, observations on the alterations in magnetism, systematic observation of sun-spots, photographic sky studies, and astronomical observations, and publishes the results of all these observations in special monthly reports.

To build up a special chart of tempest and gale statistics, the institute established in 1896 a system of observatory stations for these purposes. And in the same year, following the example of the Observatoire in Paris, laid the foundation of a meteorological instrument museum.

The National Chemical Institute and Central Chemical Experimental Station at Budapest executes any work connected with chemistry which the Department of Agriculture may require, and is its advisory body. It has to examine all materials sent in by parties interested (producers, buyers, or sellers), give advice and issue certificates, as a protection against adulteration; it also specially studies applied, and chiefly agricultural, chemistry in a scientific manner.

The work of this station was greatly increased by two Acts of Parliament; the first (XXVIII.) of 1893, prohibiting the manufacture and sale of adulterated wine, and the second (XLVI.) of 1895, prohibiting the adulteration of agricultural products and articles. It was therefore necessary to increase its equipment and staff.

Its home in the offices of the Department being too small for its increasing development, Parliament voted, in 1899, the sums necessary for a separate building. Accordingly, in the autumn of 1901, the institute moved to a special building erected in Budapest, on common ground, together with the cattle biological, feeding experimental, and seed-testing stations.

The growth of the work is shown by these numbers. The samples examined were in 1890, 3,693 ; 1895, 3,987 ; 1900, 7,811 ; 1902, 7,909.

The Bacteriological Institute is connected with the veterinary college. This institute—besides the examination of the objects sent it, and the current topics connected with the lectures—studies the remedies for swine fever and other contagious diseases. It prepares and distributes mallein and tuberculin, as well as serum for human diphtheria. The old building became insufficient to carry out this work, and the Minister was obliged to buy a plot of ground of about three holds (five acres) at Budapest, and to build a new home for bacteriology, to which the institute was moved in 1900.

The Agricultural Chemical Stations at Debreczen, Kassa, Keszthely and Magyaróvár supplement the former central institute. Their object is: to foster the development of the different branches of agriculture by scientific researches in practical work ; to examine and analyse milk supplies, mainly to examine materials used in agriculture and in industries connected with agriculture (soil, farm plants, feeding stuffs, &c.) ; to make examinations for control in sanitary purposes, and all articles and raw materials forming subjects of commerce. There are besides these, for control examinations, two chemical stations at Kolozsvár and Pozsony.

The working of the two Acts mentioned above made it necessary not only to increase the staff and equipment of the existing stations, but to establish new ones. Accordingly, Parliament agreed to the establishment of a new chemical experimental station at Fiume, which was started in 1900. The following gives an indication of the steady increase in work done. The number of samples examined

at these stations, which are not exclusively testing stations, has been :

	In 1890.	1895.	1900.	1902.
At Debreczen . .	— . .	235 . .	234 . .	214
„ Kassa . .	46 . .	164 . .	218 . .	178
„ Keszthely . .	127 . .	51 . .	104 . .	194
„ Magyaróvár . .	279 . .	488 . .	1,024 . .	1,155
„ Fiume	— . .	— . .	— . .	577
Altogether .	452 .	938 . .	1,580 . .	2,218

The aim of the *Seed-testing Stations at Budapest, Debreczen, Kassa, Keszthely, Kolozsvár and Magyaróvár* is: to control seeds and other plants in commerce; to defend the interests of producers against adulteration and abuses; to make experiments relating to the development of fertility of farm crops, the improvement of seeds, reaping, germination, noting qualities and increase of germination; to define and diffuse the knowledge of prevention against weeds and plant parasites, of good seed-cleaning implements and machines; to examine botanically feeding stuffs (corn, offal, flour, cake); to advise the public on adulteration; to issue certificates on certain examined qualities (principally charlock in purified trifolium seeds), and to judge the examined seeds.

The seed-testing stations make examination on the identity, origin, quantitative purity, freedom from charlock, and germinating power of farm seeds, free of charge to farmers. All other examinations are paid for at fees fixed.

Pressure of work made it necessary to sever the connection which had existed between the seed-testing station at Budapest, since its start in 1881 up to 1891, and the veterinary college there. All the others are at present in connection with the agricultural colleges under their respective professors, as their work is not yet of sufficient

quantity to justify separation, which would involve a certain amount of sacrifice.

The by-laws issued under the (XLVI.) Act of 1895, prohibiting the adulteration of agricultural products, calls special attention to the seeds of fodder and grass, and gives new and responsible tasks to the seed-testing stations, which were gradually developed for this purpose. It was therefore necessary to give each station a full equipment, and, in the first place, to find new accommodation for the Budapest station. This was done by a vote of 1899, the institute being transferred to a new, fully-equipped building. The increase of work in each station has been as follows :

	In 1890.		1895.		1900.		1902.
At Budapest .	2,010	.	19,326	.	28,343	.	41,656
„ Kolozsvár .	83	.	1,105	.	2,374	.	2,695
„ Debreczen .	—	.	412	.	1,237	.	2,143
„ Magyaróvár .	126	.	215	.	1,066	.	14,292
„ Kassa . .	139	.	98	.	1,117	.	3,025
„ Keszthely	293	.	85	.	240	.	469
Altogether	2,651	.	21,291	.	34,858	.	64,280

The Experimental Station for Agricultural Implements at Magyaróvár examines, from a theoretical and practical point of view, and, if possible, in a comparative manner, every agricultural implement or machine newly invented or improved, or generally used, either at the request of the proprietor, or without it, to judge on the construction, execution, the quality, and value of the material, on the working capacity, on the profitableness of using it and its requisites, and generally on all those circumstances which determine the value of any machine or implement. The object of this station is further to advise the farmers generally, on any question connected with agricultural implements.

The works of this station in the last ten years are as follows :

	Experiments on machines.	Judging the machines.		Advices.
		Drawings.	Models.	
1890 . .	14	—	—	9
1891 . .	9	—	—	11
1892 . .	17	—	—	5
1893 . .	10	—	3	21
1894 . .	7	2	1	33
1895 . .	11	—	—	19
1896 . .	9	—	—	17
1897 . .	16	—	—	21
1898 . .	13	—	—	30
1899 . .	16	—	—	62
1900 . .	49	—	—	15
1901 . .	27	2	2	31
1902 . .	13	—	—	42

The experimental station for plant breeding in Magyar-óvár tests, distributes and cultivates to the best advantage the different species and varieties of all cultivated plants, the growth of which is desirable in the country; acclimatises the growing and breeding of the respective seeds for corn, as well as grass and fodder; gives the lead in experiments in improvement of natural pastures and meadows, in experiments in artificial manures, and diffuses the knowledge of rational manuring; studies those questions relating to plant breeding, which require closer attention: propagates botanical knowledge in word and in print; fixes the identity of every plant by breeding experiments, when a definite judgment cannot be arrived at by seed-testing alone; and gives advice and instructions to farmers on questions relating to experimental plant breeding.

To thoroughly carry out its experiments and tests, the station has its own garden and laboratories, but has also the right to utilise the grounds of the experimental stations of agricultural societies and of those private

estates which are offered for this purpose either voluntarily or at the request of the station.

The principal work in manuring and plant experiments is done with the cooperation of farmers, and in this manner a certain number of farmers are asked to carry out experiments with manure and seed, which are given free. The farmers pledge themselves to make the experiments according to the advice of the station, and give a uniform account of the result.

In planning experiments, the principal point of the station is to choose only such as are practicable, and, as far as circumstances allow, the extent of which should not be less than one hold each, so as to have a sure basis for calculating the profits.

The chief aim of these manuring and breeding experiments is to convince the farmers that the correct application of the right kind of manure to seeds suitable for the circumstances will increase not only the produce but also the profits.

The station has been in work since 1891, and until 1894 it was connected with the Agricultural College at Magyaróvár. In order to enable it to carry on work covering a wider area, and to thoroughly satisfy the very important objects aimed at, it was made independent in 1894, and since that time its work has been continually increasing. The number of its experiments has been:

	In growing.	In manuring.	Total.
In 1894 . . .	637	—	637
„ 1895 . . .	842	747	1,589
„ 1896 . . .	608	249	857
„ 1897 . . .	245	704	949
„ 1898 . . .	330	357	684
„ 1899 . . .	321	146	467
„ 1900 . . .	217	149	366
„ 1901 . . .	120	127	247
„ 1902 . . .	240	284	524

The increase of work done necessitated the building of a new place, and this was effected by a vote of Parliament in 1900.

To carry out those experiments which require closer and more detailed application, all the agricultural colleges organised their own experimental fields in such a manner as to be able to conduct joint experiments. These experiments started in 1901. In the same manner the station organised on eleven private estates permanent and homogeneous experimental fields.

The entomological station at Budapest has for its object the obtaining and disseminating of information regarding injurious insects in agriculture, the discovery of the surest and cheapest method of killing them, and of their prevention. In cases of insect damages it gives instruction regarding the life history of those injurious insects and the surest methods of defence against them to farmers and authorities, and in urgent cases commands and amplifies the defence works in infested districts. Besides these the station studies independently new kinds of insects and the damage done by them, and by means of experiments fixes the procedure for destroying them.

For this purpose the station employs a whole system of correspondents who study steadily and systematically the life history of the injurious insects in different parts of the country, and supply the information to the station, with an account of the damage done, by means of official special post-cards.

The institute was formed in 1890. Previous to that year there existed only an experimental station for phylloxera, founded in 1880. The reason for this new institute was, in the first place, the question of phylloxera, which was already quite separate from the entomological studies; and, in the second place, there appeared other kinds of

injurious insects, especially the plague of locusts, whose extinction required extraordinary exertion, but was highly successful. The new institute since this time has been busy in phylloxera also, but only with the practical part of it, mainly with its life history and its extinction by carbon-oxydisulphide.

To house conveniently the institute a separate home was built through a vote of Parliament, 1899, and the institute took it over in the autumn of 1901.

The cases of insect ravages dealt with by the institute were: 1890, 234; 1891, 267; 1892, 276; 1893, 204; 1894, 560; 1895, 560; 1896, 512; 1897, 725; 1898, 581; 1899, 687; 1900, 609; 1901, 640; 1902, 735.

It was an old wish of the Hungarian agriculturists to establish at Budapest a museum, worthy of the important interests of the agricultural industry, and dealing with the past and the present of agricultural production. The National Agricultural Association, as leader of the agricultural interests of the country, agitated for this museum, and particularly at the time of the Millennial Exhibition, when the agricultural industry with great sacrifice contributed to the imposing success of their section. To satisfy this old and justifiable desire, the Department established, with the objects shown at the exhibition, the Royal Agricultural Museum, and for this purpose requisitioned all the objects exhibited in nineteen various localities, viz., in 1, hydro-technical; 2, forestry; 3, tobacco; 4, vine-growing; 5, horticulture; 6, pavilion of Archduke Frederik; 7, pavilion of Archduke Josef; 8, pavilion of Prince Philipp Koburg; 9, pavilion of Count Batthyány; 10, fishery; 11, stud farms; 12, agricultural; 13, silk industry; 14, county of Torontál; 15, county of Heves; 16, home industry; 17, dairy

industry ; 18, sugar industry ; 19, mill industry pavilions, which were chiefly free, and some part at nominal prices. The museum was organised by a committee cooperating with the municipality of Budapest, and opened on the 12th of September, having 12,120 objects valued at a quarter of a million crowns, and had the honour of being visited two days before this date by his Majesty the King and his august guest, the Emperor of Germany.

There is a special agricultural library connected with the museum which will perhaps be the most complete collection of the Hungarian agricultural literature and of the foreign literature on agriculture. In it any one can easily study both ancient and recent publications.

To foster the development, both the Department and the "Regie" of tobacco ordered all those institutions connected with them to transmit to the museum all suitable objects, and those societies formed for reclamation of land and regulation of rivers lent the museum those objects and implements exhibited at the Millenary Exhibition, the examination of which is useful to farmers.

The buildings being of a character too temporary for the objects of the exhibition, a migration was necessary in 1899. During this migration the museum was of course closed, and in the new locality in the town, opened on the 3rd of December, only a part of the collection was exhibited, the hydrographical, fishery, forestry, and the home industry exhibits remaining at the original place, together with the library.

Parliament voted in 1900 a sum of 2,400,000 crowns to rebuild permanently the historical part of the exhibition buildings and to place there the agricultural museum. The ground was given free by the Municipality, and the building commenced in the spring of 1901.

There were placed in the museum :

	At the opening.	End of 1898.	1899.	1900.	1901.	1902.
Objects	12,120	19,194	19,588	18,638	25,799	31,654
Value in crowns . .	250,912	211,942	217,474	192,221	325,390	379,506

	In 1897.	1898.	1899.	1900.	1901.	1902.
The number of visitors was .	25,671	98,163	71,392	224,925	203,073	191,812
Daily average of visitors . .	855	530	721	737	556	629

To counterbalance the decrease shown in the last few years in tobacco-growing, and to foster its cultivation, so important from an economical point of view, the farmers and merchants interested have long wished for an institution which could undertake more extensive experiments and studies for the improvement of the qualities of the tobacco grown, and advise the farmers on better modes of procedure. To satisfy this general want the Department with financial aid started in 1897 at Debreczen *the experimental station for tobacco-growing*, which began its work at the beginning of 1898 at the same time as the local station, running on the same lines, at Békés-Csaba.

The aim and the object of this institution is, to perfect the growth and management of tobacco from plant seedling to manufacturing in the factories, in every respect, to improve its quality, to foster the rational breeding of varieties and seeds; to educate tobacco-growers in its rational management, to educate tobacco-gardeners, *and tobacco-manipulating officers*; to serve the farmers, the "Regie" and its organs with special and scientific advice on every question connected with tobacco.

For this purpose the central station is equipped with a farm of an extent of 14 holds (20 acres), its affiliated local station with 6 (8 acres) holds, furnished with drying and clearing barns and laboratories. Besides this, as far as it is required, it examines the magazines of the "Regie," and makes experiments of a simpler kind for tobacco growers, either at their request or without it.

In the centre of the station at Debreczen, there is a building with the necessary bureaux, and for housing the management; one home for the permanent gardeners, two magazines for the necessary implements, four barns of different systems for drying and cleaning, with necessary buildings, Parliament having voted, in 1900, all the necessary expenses. At the affiliated local station in Békés-Csaba, there is a central building for the bureaux and the lodging of the gardener and, further, a barn for drying and cleaning operations.

The work done by the institute, though founded such a short time, fully justifies its existence, and gives hopes of its still further utility.

The extension in the growth of agricultural plants led, at the same time, to an alarming increase in plant diseases, and consequent damage, occasioned either by unfavourable conditions of cultivation, or by parasitic cryptogams or flowers. This circumstance indicated the necessity of an institution to study these diseases and find remedies against them. For this purpose in connection with the seed testing station at Magyaróvár, the management of which studied both in a scientific and practical manner these very questions, there was established in 1897, *at Magyaróvár, the station for plant physiology and pathology*, which, with a free hand and a wide scope, was started at the beginning of 1898.

The aim and purpose of this station is to study and solve the problems relating to the physiology and pathology of plants, on a scientific basis, but with practical aims. Such questions are: the effect of unfavourable circumstances on plants cultivated, the problems relating to nutrition, growing, and breeding of plants, the development of parasitic cryptogams and flowers, evidence of their appearance and diffusion, the study of the damage

done to different cultivated plants, and of the manner of their destruction, the organisation in defence against such destruction, advice to authorities and private farmers, the spread of necessary knowledge to observe diseases in foreign countries, and advise how to prohibit their importation.

In order to satisfy its purpose, the institution has a breeding farm and laboratories, all the expenses necessary being voted by Parliament in 1900. It is helped by all the agricultural, forestry, vineyard, and horticultural institutions, colleges, associations, by private farmers, and by the correspondents, who are expected to direct their attention to the appearance of plant diseases in their own districts, and to report on it by sending specimens of the diseased plants to the institution.

During the short period of its existence the institution has been successful in its study of the bacteriological diseases of the sugar beet, and in drawing the attention of the sugar beet growers in foreign countries to its results, being able not only to show the causes of the diseases, but to put forward practical remedies for their prevention. This institution pursues, at present on a larger scale, studies on diseased corn such as rust, &c., the damage from which increases each year, and for which remedies are necessary. The number of cases investigated was 950.

To foster the breeding of cattle it was important to establish such an institution which should devote its energies to the rational, and at the same time economical, feeding of cattle, which was specially to be recommended in our circumstances. To do this, the Department established in 1897 *an experimental station for biology and feeding of cattle at Budapest*. Its aim is to study the most sensible modes of feeding cattle, by precise scientific experiments with due regard to the circumstances of the

country, to the breeds actually produced in Hungary, and to the feeding stuffs grown or manufactured in Hungary. This station makes experiments only on its own initiative or by order of the Ministry; on the request of the local authorities or private farmers generally no experiments are started.

To secure the development of this institution, Parliament voted in 1900 a sum of 170,000 crowns, by means of which a new and convenient building was erected in the autumn of 1901.

The perpetual decrease in our sheep-breeding and consequently of the wool production during many years made evident the want of a separate scientific experimental station, and for this purpose the Department started *the station for sorting wool*, which began work in the spring of 1899.

The aim of this institute is to inaugurate the organisation of sheep-breeding, selection of rams and classification of herds; to advise farmers, merchants, and manufacturers on the amount of water and output of their products or merchandise, to examine the wool of the animals from the point of view of the breeder, classification and qualification, to examine the wool of breedings from the histological point of view; to make experiments for improving the ways of dealing with the wool; to elaborate methods, to examine wools, to perfect implements and invent new implements.

A very important function of the station is to guide the valuers at the wool auctions at Budapest, on the cleanliness and cheapness of the material. On this basis the minimum price corresponding to the conjunctures can be more surely stated, which shall be reasonable for the breeders.

The aim of *the Ornithological Central Station at Budapest*

is to study the migration of birds, to increase the protection of birds, and to further the science of ornithology.

This scientific institution was founded in 1893 originally by the Department of Education, and the Department of Agriculture took it over at the beginning of 1901, mainly in view of the importance of the protection of wild birds for the benefit of agriculture.

The Department, in order to educate the public, especially the farmers, with regard to wild birds and their useful or injurious influence on agriculture, caused this ornithological central station to issue in the same year a large illustrated book of the Hungarian birds in such a manner that, besides other facts, their influence on agriculture should chiefly be made apparent. The work was entrusted to Mr. Stephen Chernel, and the publishing of it to the Royal Hungarian Society for Promoting Natural Science. This work being too expensive for the pockets of small farmers, the Department requested Mr. Otto Herman, the head of the Ornithological Central Station, to write a popular book on the same subject, provided with illustrations taken from nature. This was issued at a cheap price and had a hearty welcome, its circulation amounting to 20,000 copies.

At the Third International Ornithological Congress held at Paris at the end of June, 1900, the Hungarian Department of Agriculture was represented by Messrs. Otto Herman and Chernel. On this occasion the Department issued an abbreviated edition of the great work of Mr. Chernel, on the work done in ornithology in Hungary, in French, for the use of foreigners.

The work received universal acknowledgment, and our representatives met with distinction, Mr. Herman being elected an honorary fellow, and Mr. Chernel the secretary of a section. They had considerable influence on the

Congress, and it is to be attributed to this fact, that *inter alia* this Congress, as well as the Agricultural Congress held at the same time at Paris, designated the methods initiated in Hungary as the best to study for the discovery of the useful or injurious influence of birds, namely, to examine the contents of the stomach and inside of birds; and awaits on this basis the results of ornithologists of the different States at the next (Fourth) International Congress of Ornithologists, to be held in London in 1905.

These practical examinations were commenced by the central Hungarian Ornithological Institute, beginning on a small scale in 1901.

Following the advice of this Institute, the Hungarian Government contributed to the preparation of the renewal of the expiring international regulations on the protection of birds.

The State forestry authorities gave great assistance to the Ornithological Institute by detailed reports during last year, as in the preceding years, so that very nearly all forestry offices became at the same time arthropodological stations, the number of these stations varying between 230 and 250.

A new institution is an experimental station for spirit brewing in Kassa, started only in 1901. Its aim, in order to solve questions of the brewing industry, is to make scientific and practical experiments; make examinations; to test brewing products and brewing machinery; to propagate special knowledge on brewing by word and writing; to make chemical analyses relating to the brewing industry, to examine brewing processes, and to advise on brewing industry generally.

In spite of the fact that the institution is still unfamiliar to most people, they gave in the last year eight

advices about the instalment and value of brewing factories of an agricultural size and kind.

The experimental station for dairy-work started in 1903.—Its purpose is to study and explain all questions dealing with milk and dairy products (butter, cheese); to examine samples; to give necessary advice on the handling and utilising of milk to farmers; to test dairy implements; to cooperate in competitions in order to advance the dairy industry; to control the working of dairies and cooperative dairies; to give expert advice on all questions relating to the production, handling, and utilising of all dairy products, as well as to foster and popularise all knowledge relating thereto.

TECHNICAL AGRICULTURAL EDUCATION.

The diffusion of agricultural knowledge is one of the most important duties of the agricultural administration, because the value of agricultural production depends chiefly on the quality and diffusion of the right agricultural knowledge.

Agricultural education involves really two duties for the Government: on the one side it must provide for technical education in agriculture and the gradual development of the institutions for this service; on the other side it must provide in our country, as chiefly an agricultural country, for the popularisation and the diffusion of this type of knowledge to the widest possible extent.

Technical education in agriculture has been for a long time provided in our country, and it is in its present state almost an established institution. In consequence of this, the duty before the Government in these last five years in this direction could not have been anything else than to

provide for these institutions and to fill up any gaps, and to ensure that the institutions of technical agricultural education keep pace with the permanent progress of science and practice, and to satisfy their very important needs in the altered circumstances and increased demands.

The greatest weight had to be laid on this last aim ; to supply our agricultural education with institutions equivalent to the needs and given circumstances in the quickest and best possible manner.

The highest object of the technical agricultural education, whose aim is to educate experts fit for cultivating independently the agricultural sciences and, in the first place, to produce agricultural professors, has not, up to the present, been fully developed in Hungary.

To abolish this deficiency, from many quarters the establishment of a supreme college of agriculture has been urged. With this view the Minister of Agriculture sent out two experts to study similar institutes in foreign countries, and their reports on the results of their studies will be discussed by a Conference to be summoned very shortly.

Until this supreme college is at work, the education of agricultural professors proceeds on this plan : pupils passing successfully the final examinations at the agricultural academy are nominated with scholarships to one of the existing colleges, so that, besides widening their knowledge, they shall obtain, under the guidance and control of the professors, some experience in teaching. Such assistants or assistant professors are sent abroad by the Minister of Agriculture to enlarge their sphere of knowledge.

The professors of the higher agricultural colleges, with the exception of the chairs for plant and live-stock

breeding, receive their qualification now at the university or at the technical university. The professors for live-stock breeding are expected to pass the final examination at the agricultural academy, and have the diploma of the veterinary college; those filling the plant-breeding chair to pass the final examination of the agricultural college; both are required to show longer agricultural practice, and at least one year's service as assistant, and to write an original essay on their own subject; afterwards they are nominated as assistant professors, and sent abroad generally for a year, supplied by a State scholarship, to further their studies. After this preparation, if the work as assistant is satisfactory in every respect and produces some literary work, they later are nominated for professorships.

The teaching staff of the agricultural schools and the itinerant lecturers obtain their qualifications on a similar plan, but they are not engaged as assistant professors; but for the purposes of practical education in the school are engaged on the farms and in popular teaching.

In the technical agricultural college there is a perfect division of labour according to the different branches of production, and other schools serve the agricultural, others the veterinary, or viticultural and vine-dressing, or horticultural and fruit-growing, or dairy technical education.

Agricultural technical education is carried out in three degrees: namely, at the agricultural academy at Magyaróvár—the highest degree of agricultural education; at the agricultural colleges, as secondary education; and in the lowest degree at the agricultural schools.

The agricultural academy at Magyaróvár—which was organised from the college founded in 1818, and after several alterations was taken over in 1869 by the State,

and raised in 1874 to academic degree—completes the education in a course of two years, and admits pupils having a maturity certificate and either a certificate on a year's practice or an examination for matriculation. The practical side of the education is the introduction to the farm and horticulture of the academy; these serving to teach the pupils the correct agricultural processes, businesslike manners, and rational management. Besides the prominent educational institutions, and in co-operation with them, the academy has some very powerful organs in the service of science, in experimenting, developing, and diffusing technical knowledge in the various experimental and research stations annexed to the academy, which are connected together under the control of the agricultural, experimental, and research stations.

As is only natural in an institution having the tradition of decades, its organisation in the last years suffered only so much alteration as was required by the development of scientific knowledge and the progress of practical demands. Such were in 1899 the foundation of a second chair in chemistry; the possible and necessary increase of the teaching staff, and the addition of men assistants for training for professors. Besides this the implements, and separation of the experimental and research stations connected with the institute, are improving continually, and new institutions are organised besides the existing ones. For the encouragement of the pupils there are fifteen scholarships of a value of 5,304 crowns. The number of pupils who matriculated were in the scholar years:

1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.	1902-03.
128	137	103	125	130	127	140	152

The secondary agricultural education is provided by

four agricultural colleges—all State colleges; viz., at Keszthely, organised in 1865, the origin being the Georgicon, founded in 1797; further at Debreczen, organised in 1868; at Kolozsmonostor, founded in 1869; and at Kassa, founded in 1875.

The organisation of all four colleges,—notwithstanding some small differences caused by local circumstances—is similar. The requirements for matriculation are: final examinations of the sixth form of a gymnasium or real-school, or at least a good position in the sixth form of a citizen school. The course is for three years; the tuition in the first year is principally practical; in the second and third years the scientific lectures are more important, but practical work is also carried out in these years. To give an opportunity for seeing practical working the pupils arrange, under the guidance of their professors, several excursions every year. The practical education is given in the form of the college, showing the correct agricultural processes, business-like manners and rational management.

Their organisations, being the result of the theoretical and practical experience of a considerable number of years, and answering perfectly to the requirements, have not been altered in late years; the aim has always been to make them fully competent for their work, and to increase the number of their pupils. With this view the number of the staff, in due regard to the requirements and filling of the chairs, was supplemented in late years, and also the number of the educational implements was increased and the necessary buildings and, as in the case of the academy, the number of the experimental stations organised in connection with the colleges duly located and equipped.

For the purposes of successful training it became

necessary to remove the agricultural college at Debreczen to the Pallag farm, because the pupils of the second and third years' courses, who had obtained their education up to that time in the institute in the middle of the city, were deficient in practical training, which is particularly important in agricultural colleges; the farm of the college lying more than five kilometers away from the city and so not of easy access. The building of the new institute at the Pallag farm was commenced in 1900, and the college removed to the new location on the 1st day of October, 1901.

For the agricultural college at Kolozsmonostor, the State leased from the Roman Catholic Church in Transylvania a farm of 742 holds from the estate of Kolozsmonostor, including the necessary buildings. This agreement expired at the end of October, 1898, so it was necessary to take steps to arrange a new lease to assure the proprietary right of the buildings and make extension possible. The question was solved in such a manner that this part of the estate, 227 holds, where the buildings are and the new ones are to be built, and which is absolutely necessary for the practical instruction, was sold to the Exchequer for 262,800 crowns; at the same time the Exchequer selling to the trustees the estate at Kolozs, valued at 280,000 crowns, the difference of 17,200 crowns being paid in cash. In view of the fact that the college required all the previously leased territories, those parts of the farms which remained unsold were leased again for a further 30 years. A hostel, giving accommodation for 50 pupils, was built in 1901, and the building of a new farmyard was started.

To make admission possible for poorer pupils all the colleges are to be supplied with hostels, where board is given to the pupils at a reasonable charge. In the last five years hostels were built in Kassa, Kolozsvár, and

Debreczen, according to modern requirements, only Keszthely being up to the present day without one. Experience shows that these attract the best elements, the yeomanry willingly sending their children to an institute where they can pursue their studies at a reasonable charge and under control. With the establishment of these hostels, the number of pupils increased so suddenly that, for instance, at Kassa, where the hostel was equipped only for 48 pupils, it was necessary to enlarge it for a further 20 pupils. Really this was the aim of the establishment of the hostels, because the number of the pupils was decreasing continually until late years. The number of pupils was in the school-years of

	At Keszthely.	Debreczen.	Kelozsvár.	Kassa.	Altogether.
1895-6. . .	114 . .	96 . .	98 . .	107 . .	415
1902-3. . .	126 . .	102 . .	117 . .	161 . .	506

The number of pupils attained—and, indeed, surpassed—the number of the previous seven years.

The elementary technical education in agriculture is supplied by the agricultural schools. Their object is the agricultural education of small proprietors, stewards on middle-sized farms, and farm servants. The direction of the instruction is mostly practical; theoretical instruction is only given so far as is absolutely necessary. For the practical instruction the farm of the school is used, an extent of some hundred holds, for garden, cattle, horse, sheep, poultry, and pig-breeding, bee-keeping and silk-worm culture of the school. The subjects of the theoretical instruction are: grammar, exercises in orthography and reading, the drawing up of deeds, arithmetic, geography, agriculture, plant-breeding, meadow culture, live-stock breeding, handling of healthy and sick beasts, managing of small farms, vegetable and fruit culture, and viticulture.

The course is for two years, and during this time every pupil is obliged to take part systematically and under expert control in each kind of farm labour. The requirements for admission are: age, 17 years, strong, healthy physique, reading and writing, good character, paternal or tutorial sanction, and proper clothing. If admitted at private expense, the student is obliged to pay 300 crowns for board, only in exceptional cases any reduction being made. The pupils are generally boarders; day pupils are only exceptionally admitted. Some of the pupils hold trustee or State scholarships. The boarders earn, according to their labour, 30–60 crowns yearly in wages.

The pupils of the agricultural schools are mostly 17–20 years of age, and have some preparatory knowledge acquired in the elementary schools, but some of the pupils come from secondary schools; from gymnasial, real, citizen, or commercial schools and viticultural schools. For the most part they are the sons of small proprietors and stewards. But there are also some sons of farm servants, State officers, schoolmasters, tradesmen, and merchants.

Agricultural schools were maintained, besides the State, by private bodies also. Such are the agricultural schools at Medgyes, Földvár, and Besztercze, managed by the Saxon autonomy body, the agricultural school at Csákvár, of the family Esterházy, and the educational farm at Nagy Szeben, managed by the county. There are, besides these, agricultural schools, not under State management, but supplied with the State's teaching staff, in the Szabadka municipality.

In 1895 there were nine State agricultural schools in working at Debreczen, Szentimre, Rimaszombat, Algyógy, Nagy Szentmiklós, Csákvár, Ada, Pápa, and Zsitvaujfalu;

of these the last was obliged to close at the end of the school year 1894-5, because the farm was leased for the purposes of the school; the lease was terminated, and the proprietor was not willing to renew it, and other suitable farms were not at hand in the neighbourhood. The district was still, however, provided with an agricultural school, a new school being opened at Breznòbanya in place of the Zsitvaufalu school.

Nine such agricultural schools were certainly not sufficient for a country chiefly agricultural. The first and principal business was, in consequence, to increase the number of the schools. But besides this, attention was paid to the object in view, *viz.*, to keep up their popular character, and the simplicity of the board of the pupils, equivalent to that which they had before entering the school. Where this important object and social political principle was endangered, the Government was not deterred from issuing more energetic orders. This was the case at the agricultural school at Debreczen, which was in connection with the agricultural college at the same place. The pupils of this school, being in daily contact with the first-year pupils of the college boarding at the Pallag, attempted to imitate their ways, wanted more than was necessary for their future social position, and at the same time they aimed at a position which they were unable to maintain. This tendency endangered the object in view at the agricultural schools, namely, that they were to be employed for working small farmers and as stewards only. For these reasons, the Minister of Agriculture dissolved the agricultural school at Debreczen, and the pupils were transferred to the agricultural school at Karczag, opened in October, 1899. At present the pupils of the agricultural schools are recruited almost without exception from the small farmers.

The increased numbers both of the agricultural schools and their pupils are given below in the school-years :

1894-5. 14 : 333	1895-6. 15 : 350	1896-7. 16 : 350	1897-8. 19 : 465	1898-9. 19 : 500
1899-1900. 20 : 561	1900-1. 22 : 580	1901-2. 22 : 579	1902-3. 22 : 598.	

Agricultural schools maintained by the State were, in the same years :

1894-5.	1895-6.	1896-7.	1897-8.	1898-9.	1899-1900.	1900-1.	1901-2.	1902-3.
9	10	11	12	12	14	16	17	17

The general experience of agricultural technical education is, that the development of the schools providing higher education precedes those whose scope is only to diffuse agricultural knowledge to the many.

In the middle of the last decade popular agricultural education was represented only by some popular agricultural lectures given by the teaching staff of certain agricultural schools on feast-days or Sundays. Such lectures were given by the teachers of the agricultural schools not only in the residence of the school, but also in the neighbouring villages, and were appreciated by ever-increasing numbers of the small farmers, and more intelligent farmers also, so that the audience of the lecturers, varying at the beginning from 20-80, later in most places surpassed one hundred.

This could not be otherwise than a primitive method for diffusing technical agricultural knowledge amongst the people. Consequently, the Minister of Agriculture, in cooperation with the Minister of Education, decided, in 1896, to make permanent the teaching of agricultural knowledge in the elementary schools, and organise finishing agricultural schools for young men leaving the elementary schools ; at the same time the Minister of Agriculture

decided to keep up and develop further the winter agricultural courses for the adult agricultural population.

To introduce agricultural knowledge into the schools, the first step was to provide for the agricultural education of the elementary teachers. This was done in three ways. In the first place, five training schools engaged agricultural expert teachers. These are appointed as agricultural teachers and ordinary professors at the training schools, and paid by the Minister of Agriculture, and he controls their teaching; in any other respect they are under the control of the training schools rector, and so of the Minister of Education.

Out of all the training schools, in 22 the teaching of agricultural objects has been carried out, since 1898, by agricultural expert professors.

Besides this, young and unmarried elementary teachers, after successfully passing the final examinations in their training schools, are transferred to the agricultural schools, to pass through the two-years' course there, and learn the practical methods used, and so qualify as teachers at the continuation schools, proposed in every large village in the agricultural districts, or at the higher elementary schools connected with agriculture. Lastly, the agricultural schools have arranged, since 1896, during the summer holidays, agricultural lectures for schoolmasters.

The result of all this was very satisfactory. The schoolmasters completed with great interest and care the practical and theoretical studies, and it was possible to begin in an increasing number of villages the propagation of the new agricultural knowledge. That this was done very successfully is shown by the fact that the villages are proposing in yearly increasing numbers the organisation of agricultural continuation schools, and are not deterred by the somewhat important material sacrifices.

Since 1898 nearly two thousand schoolmasters and clergymen have been educated at the agricultural schools.

The organisation of the agricultural continuation schools was settled in 1896 by the Minister of Agriculture in cooperation with the Minister of Education; and in connection with it an open competition was held for a lecture-book on agriculture and a leading guide for the use of the continuation schools, and these books were published and distributed in many thousands of copies free to the schools.

In the same manner, at the initiative of the Minister of Agriculture, and under his moral and material patronage, the county agricultural societies organise each year popular lectures on agriculture, in order to propagate expert knowledge and modern methods amongst every class of the farmers. The associations, with due regard to the local conditions, arrange the programme, where, when and what lecture should be given. Generally they are successful in securing lecturers of sound practical knowledge and fame, proprietors, lessees, stewards, clerks of public offices, clergymen, veterinary surgeons, and schoolmasters, but aid is voluntarily given by the experts of the institutes connected with the diffusion of agricultural knowledge and by the itinerant lecturers.

The excursions, systematically planned since 1899, which are arranged by small farmers, to the stud farms and farms of the agricultural colleges, are helpful in illustrating the lectures on agricultural subjects. These excursions give opportunity to the small farmers of the villages, in smaller groups organised by the county agricultural societies or by the farmers' clubs, to visit the State or stud farms or agricultural schools nearest to them, and see directly the progress of the agriculture in fully equipped farms, rational tilling, and the result of scientific live-stock breed-

ing. In those excursions, each year, some thousands of small farmers take part.

The itinerant lecturers on agriculture were organised by the Minister of Agriculture in 1898 to supply the necessary teaching staff for the itinerant lectures organised in cooperation with the agricultural societies. Until this time these itinerant lectures were given by the staff of the agricultural schools, but it was absolutely necessary to have at hand special men, as itinerant lecturers, when the number was suddenly increased, could not be supplied by the staff without neglecting their primary duties.

The diffusion of agricultural knowledge is carried out now by 2-4 months' courses of lectures, and, lastly, by itinerant lectures. The scope of the 2-4 months' courses is systematic agricultural teaching, and supplies to the participators a general survey of agricultural knowledge. Each series of lectures gives information on some branches or details of the agricultural industry. The single lectures held at the villages serve only to awaken the interest of the farmer, to give occasion for discussing the more general questions of agriculture, and to discuss certain immediate questions. The syllabus of the lectures is distributed in print to those who attend. At the courses and similar lectures, the better, heavier agricultural implements are introduced, and these are given to the most successful of the small farmers attending.

In the winter of 1898-9, the Minister of Agriculture introduced in the frame of the popular agricultural courses the practical instruction in those home industries which are already used and settled in connection with the agriculture in the districts, or are suitable; thus, for instance, in most parts, basket-making, rush-work, and wood-carving.

The Minister, being encouraged by the success of the first year's courses, decided to extend the instruction in

home industry all over the country. In consequence, during the winter of 1899-1900 the agricultural societies, farmers' clubs, and itinerant lecturers arranged more than 120 courses for agricultural home industries, the number of participating small farmers being over 3,000, who made during the courses nearly 60,000 objects. In 1900-1 there were already 161, in 1901-2 198, and in 1902-3 350 such courses. Since 1898—including the last winter—735 courses for home industry have been in work, the number of participants being over 30,000.

The courses are organised in this manner: The agricultural societies and farmers' clubs draw up, in due regard to local conditions, the detailed programme of the proposed courses, indicating the place and time of the course, the home industry to be taught, estimate the stipend of the teacher, the necessary expense of the implements and raw material required for the instruction, and send in this programme and estimate to the Minister of Agriculture. If the programme is satisfactory they are sure to get some State grant.

In the organisation of these courses, first, attention is paid to the home industries already known, in order to develop them, under the guidance of expert teachers; for this reason, at most of these classes, basket-making and wood-carving are taught with the view to enable the farmer to produce the tools and objects used on his farm. At the courses organised for women, the handling of vegetables and fruits is chiefly taught, because the excellent quality of those products and the good handling used in our country being superior to the preserves imported from abroad, it is hoped that it will be possible to drive out, by better care and better marketing, the foreign products.

The instruction was extended in some districts to brush and broom-making, straw and rush-weaving, beehive-making,

boxes for fruit conveyance, portions of farming and horticultural tools; further, for the women to prepare and market certain articles of ordinary consumption, viz., fruit extracts, fruit cheeses, rolls of meat, the packing, drying, and preserving of garden products, vegetables, and fruits, &c.

How great is the interest taken in these courses by the small farmers is to be seen by the fact that it was necessary, in view of the numerous attendance, to admit twice, or in some cases thrice, as many pupils as was originally fixed in the interest of efficient teaching, to 20–25.

The pupils admitted to these courses are generally young men of 15–20 years of age, and their earnestness leaves nothing to be desired.

Many of these youths, sent by their families from far villages to these courses, go away as expert workers in some branches, and are able to teach the members of their families and the villagers the work—so diffusing the knowledge derived.

The articles made in superfluous numbers—viz., baskets for fruit, grapes, carriage, &c.—are marketed in most places in common. Some of the courses have so many orders from fruit or grape growers that they are hardly able to satisfy them.

In the agricultural schools in the winter season the best part of the practical instruction is given in home industries. The pupils of the two years' course are educated in some branch of the home industry. In the agricultural school at Algyógy the pupils, mostly Székelys, are educated in building, mostly in carpentering, covering and making of tools.

The small farmers following the two months' winter courses are instructed generally in basket-making, broom-making and wood-carving. The number of pupils in

these winter courses yearly in 14 agricultural schools of 40—70 each amounts to 560.

In the agricultural schools the instruction in home industries has been introduced already for seven years ; each school is supplied with separate working rooms and masters, so that in the agricultural schools a busy work is going on, when the outside work is decreasing or ceases. One part of the pupils is engaged in basket, broom, or brush-making, or in wood-carving and preparing the tools necessary for the cultivation work.

The more practical method to keep alive local interest in the home industries is to arrange a show of the manufactured articles at the end of the course in the village, to show the farmers the objects to be bought there and take orders at the same time.

These agricultural societies, which arrange such courses in their counties, arrange special shows of the products of these courses in the larger towns of the counties, in order to awaken the interest of the whole farming community and stimulate them, showing the work and where it was executed. Last winter several such shows were held very successfully. The objects made in these home industry courses were exhibited in larger groups in 1902 at the Budapest, and in 1902 at the Pozsony shows. On the last occasion the best of these producers received two gold, some silver and bronze medals, besides many orders.

Many work-colonies and cooperative societies also started these courses of agricultural home industries and received some material help on the condition that they pledged themselves besides employing local labour to instruct young labourers to a fixed number in the work of home industry.

In order to give permanent effect to the activity

shown in promoting the home industry, it was necessary to give direction and possibility for the marketing of the objects worked, by which the labourer could earn respectable wages above the value of the raw material used. Those working in home industries having neither capital nor local market, and being unable to go to markets further away, are unable to produce and to market their produce successfully. For this reason, besides the educating and developing of the agricultural home industry, the Minister of Agriculture gave a special commission to one of his agents to carry out the work connected with the marketing of the produce in July 1903.

The itinerant lecturers on agriculture commenced their work in 1898. Their aim is the diffusion of agricultural expert knowledge, to give advice on agricultural questions, and to arrange courses. The questions asked of the itinerant lecturer are bound to be answered in writing or orally on the spot and in a practical form but always free of charge.

The Minister of Agriculture organised in 1898 in those districts of the country which have agricultural conditions favourable to the produce of some more extensive branch of agriculture, and where these branches are not cultivated on account of want of instruction and encouragement, agricultural expert professors, one for flax-growing in Budapest, another for hop-growing in Kolozsvár, the other for dairy and co-operation at Kaposvár. The work of these professors extends all over the country. The diffusion of co-operation is the duty of every expert professor and itinerant lecturer.

The agricultural expert professor and itinerant lecturer lecture during the summer term on agriculture at the training schools; in the winter time, during the

cessation of the agricultural external work, they organise the 2-3 months' courses mentioned already and take part in the itinerant lectures on agriculture.

There have been organised since 1899 in connection with each of the agricultural schools 1 to 2 winter agricultural schools. The aim of these schools is to give instruction in the fundamental knowledge of agriculture to the adult farming community, who cannot leave their farms for a longer time. The instruction is given by illustrations and by advice according to circumstances. These winter schools admit such thoroughly reliable small farmers over 18 years of age, who can read and write and know the elements of arithmetic. Those farming on their own lands have preference in the admission. The length of these winter courses is two months. Those living in the neighbourhood can be admitted to see the work done during the summer. It is proposed later, according to the requirements, to lengthen these courses to three, and, eventually, to four months. The first course is given from 1st November until 20th of December, the second from 5th of January until 28th of February. At every agricultural school are admitted to each winter course 20 boarders, who receive their board quite free. Besides these, there are admitted day pupils according to local circumstances. The instruction is given in the qualities of soil, general plant-growing, and the special cultivation of those plants produced in the districts or the produce of which would be very desirable; further, so much of live-stock breeding and raising as can be seen in the farm of the school, all practically and in an instructive manner. Lastly the simplest arithmetic, and lectures on agricultural police and labourers' laws.

Besides the schoolmasters, the clergymen participate

also in agricultural education, partly in the seminaries, partly in courses equal to those of the schoolmasters.

In the interests of the wider diffusion of the technical agricultural knowledge the Government took in hand the propagation of the agricultural technical literature, especially that of a good popular kind. With this view, partly by commission, partly by open competition, it issues special works relating to scientific agriculture, practical agriculture, and agricultural administration—these works published by the Minister of Agriculture being in number in the years

1896.	1897.	1898.	1899.	1900.	1901.	1902.
9	11	27	32	44	41	18

and makes it possible for every man interested to obtain them at nominal prices; indeed, they were distributed in some cases to agricultural societies, clergymen, schoolmasters, and village clerks quite free. Besides this, some of the periodical publications on agriculture are aided by numerous subscriptions, the copies subscribed for being distributed to the agricultural correspondents.

To make known the agricultural institutions of the country abroad, the Minister of Agriculture caused to be written in the French language, and published, several works on agricultural branches and institutions managed by his Department.

APPENDICES

APPENDIX I

LEGISLATION AFFECTING AGRICULTURE AND ESTIMATES OF THE DEPARTMENT OF AGRICULTURE SINCE 1896.

THE notes on agriculture in Hungary during the stated period are completed by the enumeration of the Acts of Parliament passed in this period affecting agriculture, and by a comparison of the estimates of the Department of Agriculture during this period.

The Acts passed were (with the mention of the introducer).

In the Year 1896.

1. 5th.—To promote the reconstruction of vineyards devastated by phylloxera (Minister of Agriculture).

2. 25th.—On small allotments and similar kinds of property (Minister of Justice).

In the Year 1897.

3. 1st.—On the reduced price of salt for the use of cattle (Minister of Finance).

4. 10th.—On modifications of the 2nd Act of 1893 on the extinction of pleuro-pneumonia (Minister of Agriculture).

5. 18th.—On the expenses of official participation of Hungary in the international exhibition to be held at Paris in 1900 (Minister of Commerce).

6. 21st.—On the fresh arrangement of the financial conditions of the Temes Bega valley water defence association (Minister of Finance).

7. 32nd.—On the guarantee of some securities issued by inland banks (Minister of Finance).

In the Year 1898.

8. 2nd.—On the regulation of relations between employers and agricultural labourers (Minister of Agriculture).

9. 11th.—On the modification of the 39th Act of 1879 on the national mortgage bank of small proprietors (Minister of Justice).

10. 19th.—On the State management of common and some other forests ; further, on the regulation of the cultivation of commonly used and undivided property forests and barren territories (Minister of Agriculture).

11. 20th.—On the modification of some dispositions of the 48th Act of 1895, in order to use some investments in watercourses (Minister of Agriculture).

12. 23rd.—On cooperative societies in credit and agriculture (Minister of Justice).

In the Year 1899.

13. 16th.—On the modification of the general custom duties tariff of the common custom territory of Austria-Hungary (Minister of Finance).

14. 22nd.—On the distribution of the quantity of alcohol to be produced by the lower duty during a period by breweries subjected to lower scale of excise duties (Minister of Finance).

15. 41st.—On the casual labourers and wage-earners at the waterworks, or the building of highways and railways (Minister of Agriculture).

16. 42nd.—On the contractors and their labourers in agriculture (Minister of Agriculture).

17. 49th.—On the concessions to be given to the inland industry by the State (Minister of Commerce).

In the Year 1900.

18. 9th.—On the modification of some dispositions of the 22nd Act of 1899, and 24th Act of 1899 (relating to the distribution of brewery-contingencies) (Minister of Finance).

19. 15th.—On the modification and supplementing of the 29th Act of 1886, of the 38th Act of 1889, and of the 29th Act of 1892 (on water-regulating societies) (Minister of Agriculture).

20. 16th.—On pensions of agricultural labourers and farm-servants (Minister of Agriculture).

21. 17th.—On the nationalisation of the veterinary service (Minister of Agriculture).

22. 25th.—On the modification of Schedule 50 of the 17th Act of 1887 relating to the canvassing for orders (Minister of Commerce).

23. 27th.—On the regulation of the relations between landowners and stewards (Minister of Agriculture).

24. 28th.—On the labourers in forests (Minister of Agriculture).

25. 29th.—On the regulation of the relations between tobacco growers and tobacco gardeners (Minister of Agriculture).

26. 30th.—On the establishment of irrigation canals in the common interest (Minister of Agriculture).

27. 34th.—On the supply of the outlay of some State investments (Minister of Finance).

28. 35th.—On the prolongation of working of an Act of 1895 (giving exemption from fees and stamps by some transfer of some mortgages) (Minister of Finance).

In the Year 1902.

29. 8th.—On the ratification of the acquisition of the Csorbalake estate for the Exchequer, and on the supply of this expense by selling State estates (Minister of Agriculture).

30. 14th.—On the supplement of the 16th Act of 1900 on the pensions of agricultural labourers and farm servants (Minister of Agriculture).

31. 22nd.—On the regulation of the Bega canal, necessary in the interests of the defence from water of the society for defence in the Temes Bega valley (Minister of Agriculture).

The estimates of the Department of Agriculture were in the said period in crowns :—

	Expenditure of the Department.		Income of the Department.		Balance of expenditure (paid by the Exchequer)
1896 . . .	42,999,266	. .	32,670,386		10,328,880
1897 . . .	45,276,924	. .	33,656,130	. .	11,620,794
1898 . . .	47,472,272	. .	33,941,454	. .	13,530,818
1899 . . .	52,105,228	. .	37,848,442	. .	14,256,786
1900 . . .	57,833,215	. .	43,635,968	. .	14,197,247
1901 . . .	60,219,639	. .	44,426,803	. .	15,792,836
1902 . . .	62,505,716	. .	45,258,600	. .	17,247,116
1903 . . .	64,648,676	. .	45,723,991	. .	19,924,685

APPENDIX II

STATE INSTITUTIONS IN HUNGARY FOR AGRICULTURE.

(All places mentioned are marked on the map.)

- I. *Institutions to promote the knowledge of Meteorology and Geognosy, as well as the Improvement of Land and the different branches of Agriculture.*

Royal Hungarian National Institute for Meteorology and Magnetism at Budapest is engaged in inquiring into the climatical conditions of the country ; shows on a meteorological chart daily issued the weather prognostications for the following 24 hours ; this report being distributed to institutions, newspapers, and private subscribers, and being wired to 300 various stations, which publish them on annexed tables.

Royal Hungarian Geological Institute at Budapest inquires into the conditions of the soil ; its *agrogeological section* studies the conditions of the strata of the soil ; gives expert opinions and reports on the results of the studies in its annual reports.

Royal Hungarian district offices for Land Improvements at Budapest, Komárom, Kassa, S. A. Ujhely, Debreczen, Kolozsvár, Miskolcz, Arad, Brassó, Szombathely, Temesvár, Nagy Enyed, Pécs, Pozsony, Nagyvárad, Besterczebánya, Nagy Szeben and Székesfehérvár, encourage the farmers in

their work in improvement of land; give advice on the suitable method for the proposed improvement, arrange the plant and estimates of the work, fix the way of working. The cooperation of the cultivation engineers is to be asked from the Minister of Agriculture, their cooperation involving no cost to the farmers.

Royal Hungarian School for Water Controllers at Kassa educates the labourers engaged in the work started by the cultivation engineers; requirements of admission—age between 18 and 30, healthy and strong physically; final examination of the second year of a secondary school, or under-officership in the Army.

Royal Hungarian Chemistry Institute and Chemistry Experimental Central Station at Budapest, as well as the *Chemical Experimental Stations* at Debreczen, Kassa, Keszthely, Kolozsvár, Magyaróvár, Pozsony, control chemical analyses on objects of agricultural products and agricultural industry at fees fixed at each of the stations; and contribute—with the exception of the stations at Kolozsvár and Pozsony—to the improvement of the agriculture by making chemical analyses and experiments. At all the stations are Governmental experts for the administration of the Acts prohibiting the preparation and marketing of artificial wines, and adulteration of agricultural products and objects.

Royal Hungarian Seed-testing Stations at Budapest, Debreczen, Kassa, Keszthely, Kolozsvár and Magyaróvár make examination of different seeds as regards identity, purity; of clover seeds on absence of charlock; supply the certificates for the purified clover seeds; analyse the hay and oats, feeding stuffs; botanically define the weeds and weed seeds, and propagate the knowledge of defence against them. At all the stations are Governmental experts for the administration of the Acts prohibiting the adulteration of agricultural products and objects. The stations receive fees on a fixed

scale for the examinations made by them ; the examinations made for the farmers as to the identity, purity, germination power, and absence of charlock are free.

Royal Hungarian Experimental Stations for Plant Growing at Magyaróvár carry out experiments of a practical kind with the cooperation of the farmers in order to test and diffuse more desirable kinds and variation of the plants cultivated, manures, and manuring processes.

Royal Hungarian Experiment Station for Tobacco Growing at Debreczen experiments in order to improve the growing and managing of tobacco, the improving of the cultivation at its own, and the subordinate farm at Csaba ; with the cooperation of the tobacco growing farmers.

Royal Hungarian Experimental Station for Agricultural Implements at Magyaróvár tests the agricultural machines and implements as regards utility and value.

Royal Hungarian Entomological Station at Budapest studies the harmful insect diseases, tests the means of extinction and their application, and diffuses the necessary knowledge ; conducts in case of larger instances of devastation the defence works on the area attacked.

Royal Hungarian Station for Physiology and Pathology of Plants at Magyaróvár studies the damages as well as the defence suitable against the ravages caused to plants not by insects but by organisms with or without flowers (flowery parasites and parasite mushrooms), as well as by unfavourable conditions of cultivation.

Royal Hungarian Experimental Station for Biology and Feeding of Cattle at Budapest studies the rational feeding of live stock.

Royal Hungarian Experimental Station for Dairying studies the questions relating to milk and milk-products, tests the milk, and dairy implements, cooperates in dairy competitions, controls the business of dairy farms and cooperative societies,

gives expert opinions on milk producing, handling, and marketing, and propagates the knowledge relating thereto.

Royal Hungarian Central Commission on Agricultural Experiments is engaged in discussing the uniform and parallel working of all the experimental stations, and publishes the results of the work done in these stations in the pamphlets on experiments.

Royal Hungarian Bacteriological Institute at Budapest studies in connection with the veterinary academy the causes of contagious diseases in domestic animals.

Royal Hungarian Wool-testing Institute at Budapest carries out in the interests of sheep-breeding and wool-marketing the inspection of washed and unwashed wools.

Royal Hungarian Agricultural Commissions of Experts at the Agricultural Academy at Magyaróvár, at the Agricultural Colleges at Debreczen, Kassa, Keszthely, Kolozsvár, give expert opinions on implements, on farms, plans of culture, valuations, lease agreements, accounting, &c. The reports are given free, but if the expert is required to journey to any farm, his travelling expenses must be paid.

II. *Institutions for horses, cattle, sheep, pig-breeding, dairy-farms, poultry, fish, bee, and silkworm breeding.*

Royal Hungarian State Studs at Kisébér for English thorough and half-bred, at Bábolna for Arabian thorough and half-bred, at Mezöhegyes for inland Gidran, large and small Nonius¹ bred, half-bred English, at Fogaras for Lipiczas, at Kolozs for English half-breed, at Gödöllő for small Nonius¹ bred; to supply the common breeding with serving stallions the Minister of Agriculture buys for this purpose from private breeders foals selected in the first year and found suitable at the third year of age; some number of stallions being

¹ Anglo-Norman.

sold to villagers at a low price to be paid by instalments, or are given to them quite free.

Royal Hungarian Stallion Stations at Szèkes, Fehèrvàr, Nagykörös, Debreczen, Szepsi Szentgyörgy, attend to the managing and controlling of the State's stallions, distributed in the breeding time for the immediate use of farmers in nearly 1,000 stations in the country, where they do service at a small fee. Larger breeders can lease stallions for a whole breeding season.

Royal Hungarian District Inspectors of Cattle Breeding at Budapest, Beszterczebánya, Balassagyarmat, Debreczen, Dèès, Kassa, Komàròm, Kolozsvár, Máramaros Sziget, Miskolcz, Szombathely, Pozsony, Segesvár, Nagy Szeben, Szeged, Temesvár, Nagy Vàrad, Pécs, Liptó-Szent-Miklós, and at their head the royal Hungarian chief inspector on cattle breeding at Budapest, encourage and advise, lead and direct the cattle-breeding farmers; distribute with the permission of the Minister of Agriculture the breeding bulls, rams, and boars bred at the State farms, agricultural colleges, or schools, as well as on some better breeding farms, eventually, at low prices to be paid by instalments, to villages and cooperative societies.

Royal Hungarian National Inspector of Dairy Farms at Budapest is appointed to promote the interest of dairy farms and to establish cooperative dairies.

Royal Hungarian Dairy School at Sàrvár educates those men required to lead in cheese-making, dairy farms, and to establish cooperative dairies; held twice yearly in four months' courses.

Royal Hungarian Schools for Dairy Labourers at Munkács and Gödöllő to give expert instruction to men employed at dairy farms. The course is for one year; admission when 16 years old, and able to read and write.

Royal Hungarian School for Dairy Maids at Nagy Szécsény

educates female farm servants on a dairy farm, equipped with small numbers of cows. Admission when 15 years old ; the course lasts for 6 months.

Royal Hungarian Poultry Farm and School for Poultry Labourers at Gödöllő breeds poultry for the purposes of common breeding ; educates labourers to be engaged by breeders ; works to improve and increase the number of the poultry of the country.

Royal Hungarian Inspector of Fisheries is engaged in promoting the fisheries and artificial pisciculture, on open waters ; organises with this view associations, draws plans in order to utilise ponds and canals in pisciculture, and distributes eggs.

Royal Hungarian Itinerant Teachers in Agriculture at Kiskùn Félégyháza, Pápa, Pozsony, Sáròspatak, Arad, Nagy Eüyed, Kolozsvár, and at their head the royal Hungarian inspector on agriculture at Budapest, are engaged in developing agriculture and propagating expert knowledge on bees.

Royal Hungarian Bee Farm at Gödöllő. Its aim is to educate agricultural labourers suitable to conduct independently larger bee farms ; to organise special courses for clergymen, schoolmasters and others in apiculture ; to make scientific and practical experiments in promoting apiculture ; to show on their model farms rational ways of bee keeping ; to instruct practically in the making of the necessary tools, beehives and implements ; to propagate the correct methods in the packing and marketing of bee farm products, especially of honey ; to breed and propagate good honey-producing trees, bushes, and plants. The farm is under control of a bee master, a bee labourer and an assistant. The courses are : two years for bee farm labourer, and four weeks for clergymen, schoolmasters, gardeners, forest-keepers, and small farmers.

Royal Hungarian National Inspector for Sericulture at Szegszárd works for the propagation of the silkworm breeding,

growing the necessary mulberry trees, and diffusing expert knowledge ; he distributes free silkworm eggs from the silkworm breeding station at Szegszárd as well as caterpillars of 2-3 days old, seeds and seedlings of mulberries for nurseries ; and keeps 24 dépôts for buying the silk.

III. Institutions for Veterinary and Agricultural Expert Education, and to diffuse Agricultural Knowledge.

Royal Hungarian Veterinary Academy at Budapest educates veterinary surgeons by four year courses ; admitting persons passing the final examination at secondary schools since 1901.

Royal Hungarian Agricultural Academy at Magyaróvár gives higher instruction in two year courses in agriculture for pupils passing the final examination in secondary schools and having one year's practice.

Royal Hungarian Agricultural Colleges at Debreczen, Kassa, Keszthely, Kolozs Monostor, give secondary instruction in agriculture in three year courses for pupils passing the sixth form of a secondary school and being 16 years of age.

Royal Hungarian Agricultural Schools at Ada, Algyógy, Breznóbanya, Békés Csaba, Csákovár, Jászbereny, Hódmezővásárhely, Karczag, Kecskemét, Komárom, Lugos, Nagy Szent Miklós, Pápa, Rimaszombat, Szent-Imre, Szabadka, and Szilágy Somlyé give elementary education in agriculture, educating the sons of small farmers to manage smaller farms, foremen and stewards in two year courses ; requirements of admission—reading and writing, 16 years of age, healthy physique, sons of small farmers having precedence. There are held at the same places winter courses for two months, and several courses for schoolmasters, appointed to teach in continuation agricultural schools.

Royal Hungarian Itinerant Lecturers at Arad, Baja, Csáktornya, Csurgó, Félégyháza, Déva, Eperjes, Esztergom,

Léva, Losoncz, Pécs, Sáròspatak, Szamosujvár, Temesvár, Ungvar, Znio Váralja, appointed to propagate expert knowledge on agriculture.

Royal Hungarian Professor of Hemp and Flax-Growing at Kassa, of Hop Growing at Kolozsvár, of Dairy Farming at Kaposvár, are appointed to propagate expert knowledge; give advice and direction.

All those employed in agricultural education cooperate in courses of popular agricultural lectures organised with the aid of the Minister of Agriculture.

The propagation of expert knowledge is served by the *Model Peasant Farms*, which are organised with the aid of the Minister of Agriculture in order to show examples in rational equipment and management of small farms.

Royal Hungarian Agricultural Museum at Budapest.

IV. Institutions for Viticulture and Vine Dressing.

Royal Hungarian Central Experimental Station for Viticulture and Ampelological Institute at Budapest, for the study of viticulture, vine dressing, the diseases of grapes and the defence against them, and make the experiments in this direction.

Royal Hungarian Advanced School for Viticulture and Vine-dressing at Budapest gives in one year's course scientific and practical education for young men who have passed the Agricultural Academy or Agricultural College.

Royal Hungarian Schools for Viticultural Labourers at Bihar Diószeg, Eger, Nagy Enyed, Pozsony, educate in two and three years' practical and partly theoretical courses, viticultural labourers for the management of middle-size vineyards; *Royal Hungarian Schools for Viticultural Labourers, Kecskemét, Mènes, Tapolocz, Tarczal*, aided by the State

at Munkács and Pécs, instruct in one year practical courses labourers and keepers for the management of smaller vineyards.

Course for Vine-dressers at Budapest, with practical and theoretical instruction.

Royal Hungarian Inspectors on Viticulture and Vine-dressing at Budapest, Szegzárd, Pécs, Kaposvár, Csáktornya, Tapolcza, Pápa, Sopron, Pozsony, Nyitra, Esztergom, Szirák, Eger, Miskolcz, Tarczal, Beregszász, Szinyér-Váralja, Szilágy Somlyó, Bihar Diószeg, Ménés, Fehértemplom, Debrecen, Kecskemét, Szabadka, Nagyenyed, Dicső-Szent-Martón, Torda, appointed to diffuse expert knowledge on viticulture and vine-dressing, and give advice and directions to the vine-growers. The inspectors give lectures, the place and time of which are made public in the districts.

Royal Hungarian Miklós Vineyard at Kecskemét, to illustrate viticulture on sandy terrains and breed European vine stocks.

Forty-four State Nurseries of American Stocks distributed in the vine-growing districts, for breeding American stocks and graftings, for testing different cultures, for giving lectures, and for educating special labourers and foremen.

State Experimental Model Vineyards at S. A. Ujhely, Sárospatak, Olasz-Liszka, Mád, Sóstó, Tolcsva, Deliblat, and, besides those, fifty-three depôts for carbon sulphide, to distribute the carbon sulphide necessary for the defence of phylloxera-infected vineyards at a low price and without delay.

Royal Hungarian Central Model Cellar at Budapest, under the control of the Minister of Agriculture, for the improvement and diffusion of rational vine-dressing as well as the marketing and export of the Hungarian wines, and managing and marketing of wines of wine-growers.

In the administration of the 13th Act of 1893, on the prohibition of the preparation and marketing of artificial wines, to cooperate in all districts and counties, and in all

boroughs, as well as in the district of Budapest, with the committees for the control of wine, whose duty it is to control permanently under the Act aforesaid the conditions of wine-producing and marketing, to help the authorities in prosecuting adulterators. The permanent wine-testing expert committee at Budapest and Kolzsvár are appointed to test the wines in an expert manner and give their opinion, the Royal Hungarian chemical experimental stations being called on for the chemical analysis of wines.

V. Institutions for Fruit and Horticulture.

Royal Hungarian Commissioner for Fruit and Tree Culture at Budapest directs the fruit cultivation of the country, promotes fruit culture, cultivation of the willow tree, tree planting on highways and marketing of the fruit, gives advice and directions in all these questions to tree and fruit growers.

Royal Hungarian Horticultural School at Budapest gives in three year courses education in all branches of gardening, as well as in modern viticulture, to those men who are qualifying for the management of larger orchards and horticulture; labourers who have already three years' practice are instructed in one year courses; at periodical courses highway guards and highway keepers, and schoolmasters are instructed in fruit and vegetable growing and marketing.

Royal Hungarian Schools for Horticultural Labourers at Lőcse, Torda, Nagybecskó, Baja for those young labourers in gardens and vineyards who have fulfilled the military service or are exempted from it.

A Chair for Horticulture at Orosháza for pupils of the citizen school and adults, in connection with a model garden.

Inspectors and Itinerant Lecturers on Tree Culture at Budapest, Kőszeg, Korpona, Máramaros Sziget, and Ungvár.

State Nurseries at Budaörs, Csákovár, Fogaras, Gödöllő, Kecskemét, Kis Szeben, Kolozsvár, Kiskér, Lugos, Mezőhegyes, Nyitra Rudna, Pápa, Szolyva, Sepsi Szentgyörgy, Tarczal, Tihany, Torda, Trencsén, Ungvár, and Zilah.

VI. *Institutions for Forestry.*

Royal Inspectors of Forestry at Budapest, Pozsony, Turóc-Szent-Márton, Besztercebánya, Miskolcz, Kassa, Ungvár, Máramaros-Sziget, Debreczen, Nagyvárad, Kolozsvár, Maros-Várhely, Brassó, Nagyszeben, Déva, Temesvár, Szeged, Pécs, Győr, and Szombathely to administer the working of the Acts on forestry and regulations made for forestry. They distribute, free, forestry seedlings for reafforestation of barren territories from State nurseries; the reafforestations made without State aid, if successful, are rewarded.

Royal Hungarian Forestry Academy at Selmezbánya educates in three year courses for forestry officers, young men who have passed their final examinations in secondary schools.

Royal Hungarian School for Forest-keepers at Királyhalma (near Szeged), Vadászerdő (near Temesvár), Liptó Ujvár, and Görgény-Szent-Imre educate forest-keepers in two year courses. Conditions of admission—17 years of age and under 35 years, healthy, strong physique, able to read and write.

Royal Hungarian Central Forestry Experimental Station at Selmezbánya, and the external station at Királyhalma, Vadászerdő, Liptó Ujvár, and Görgény-Szent-Imre, explain all questions relating to forestry by experiments and scientific researches.

VII. *Institutions for Agricultural Labourers.*

The Section of the Department of Agriculture dealing with Labourers at Budapest keeps a register of labourers seeking labour and employers wanting labourers. Supplies the addresses of labourers and employers. The self help societies of the agricultural labourers are helped by the Minister of Agriculture either by money grants or by giving books.

The Home Colonisation Section of the Department of Agriculture at Budapest gives advice and direction to those working to settle all questions relating thereto ; registers all those would-be settlers and the settlements not yet occupied.

All these institutions advise any farmers free of charge. All the work executed by them is free, and if any of the officials connected have to make journeys, the Exchequer defrays the cost, if such journeys be in the common interest ; if in private interests, whoever applies must defray the cost. All the educational institutions charge a tuition fee, but all have scholarships founded by the State, as well as private benefactors.

